Thursday,

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PRODUCING REFINING MARKETING

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Production Down; Consumption Gaining

Average daily production in United States week ending Dec. 22, 1,925,602 bbls..

Decline of 41,815 Bbls. Daily in Output Registered Last Week While Open Winter Results in Record Use of Products

Loss in daily production in United States week ending Dec. 22, 41,815 bbls.

By Andrew M. Rowley

With reports from every section of the United States to the effect the consumption of petroleum products is far greater than at any other time at this season of the year in the history of the oil industry and with the production of crude petroleum declining materially and already having reached a point where it is probable stocks will have to be drawn upon to supply the demand, the outlook for the petroleum industry is brighter than it has been in years. During the past week, production of crude petroleum in all fields of the United States, decreased at the rate of 41,815 barrels daily, bringing the rate of decrease during the past five weeks to the stupendous figure of 334,426 barrels a day, and causing the total estimated daily average output to drop to 1,925,602 barrels.

When production and consumption figures are studied at this time, it is obvious to even the most obtuse laymen why there is such a pronounced spirit of optimism prevalent throughout the petroleum industry at this time. By the time this is published it is probable Government figures giving the consumption of crude petroleum during November will be available. Consumption in October amounted to slightly more than 2,035,000 barrels daily. Production now is 110,000 barrels daily below that figure. Consumption is holding up better than production and is establishing new records in nearly every part of the country. Consequently, it is fair to presume that at this time there is little, if any, difference between production and consumption and this at a period of the year when it is generally expected consumption should be at a minimum and crude should be going into storage.

Open Winter in Consuming Area

The great consuming territory east of the Mississippi River is experiencing one of the mildest winters so far in its history. This is shown by the temperatures recorded at the close of last week, the official thermometer in New York registering 62 degrees, in Pittsburgh, 60; Boston, 60; Cincinnati, 60; Cleveland, 50; Philadelphia, 64; Chicago, 46; and Washington, 68. Very little snow has fallen in the East this year with the result automobile traffic is the heaviest in years and the demand for gasoline and lubricants far above what has been expected. This great consumption, coming at a time when production is registering its greatest drop in the memory of any person connected with the oil business, is the best New Year's greeting those connected with the oil business could receive. It means but one thing—prosperity in 1924.

Advances in the posted prices of crude are expected in practically every field in the country. It is believed substantial increases in price will be posted during January and that crude prices during 1924 will be considerably higher than the average for the past year. In the Mid-Continent area, there is little doubt increases in price will be placed in effect within the very near future. The Gulf Coast is also due for better prices and a general advance all along the line from the eastern fields to California seems to be a logical assumption at this time.

Another Big Drop at Powell

The output of the Powell Field in Texas dropped to an average of 87,100 barrels daily last week, a decline of 21,609 barrels daily as compared to the record of the previous week. Not a new derrick was started in the field during the week and operations were practically at a standstill as the week closed. The delay in installing equipment to pump the wells at Powell which have stopped flowing is postponing the time when production there will become more settled. When many of these are put on the pump, production will be held more stationary, but weather conditions are an important factor at Powell, a heavy rain in the district making operations almost impossible as far as hauling material is concerned.

This is the season of the year when operations in all fields may be expected to decline to a minimum and little new production will be brought in to offset natural declines. This condition may be expected to continue well on towards spring. In the Wyoming-Montana area, operators are shutting down for the winter and little in the way of extensive drilling campaigns wil be inaugurated until the worst of the winter is over, at least. During the past week, production of Wyoming and Montana dropped nearly 10,000 barrels a day.

California Output Up Slightly

The Torrance Field in California showed an increase of 8,000 barrels daily in production during the past week, the entire State registering an increase of 2,000 barrels daily, the first time there has been an advance in output for some time. The increase, however, is not regarded as significant and the production of California may be expected to decline for some time to come. Torrance, probably, will show increases but it requires a long time to drill a well in that field and increases in output there will hardly be sufficient to offset declines in other fields.

There is considerable oil excitement in Colorado and adjacent territory as a result of the spraying of a wet gas by the big gas well near Wellington, Colo. This well was finally shut in during the past week after it had covered surrounding territory with a thin film of oil which tested 37 degrees Baume, or about the same as that found in the Salt Creek Field. It is by no means certain the structure on which the well is located contains oil but operators are watching developments closely.

Decline in Oklahoma Continues

The three leading fields in Oklahoma-Burbank, Tonkawa and Wewoka—continued to show decreases in production during the past week and the output of the State dropped more than 5,000 barrels. Little new work is starting and operators seem content to continue to curtail operations for the time being or until crude prices show a substantial increase. The shutdown agreement affecting the Burbank Field is being observed and will continue in effect at least until January 10, when operators will hold another meeting to decide whether to still continue it. The production of this field could be increased, probably to 100,000 barrels daily, within a very short time and the Burbank Field will be an important factor in the general situation when activity is resumed again by producers.

Winter usually brings declines in production and operators in close touch with conditions in the different fields of the country are predicting that this season will not prove an exception. These men feel the decline now being experienced will continue for another month at least and that by that time, production will be considerably below the requirements of the country.

There is little doubt but that drilling activity in 1924 will extend to every known producing field in the country while wildcatting is expected to reach enormous proportions. There is not any real promising new territory in sight at this time but activity has been curtailed for several months and all promising structures will be developed when weather conditions premit and when the demand for the crude makes insistent greater production. Consequently, the future seems most bright to all connected wtih the oil industry.

PRODUCTION IN THE UNITED STATES

Estimated daily average production in the oil fields of the United States for the week ended December 22, and a comparison with the previous week follows:

Field	Dec. 22	Dec. 15
Oklahoma—Northern Fields:		
Tonkawa	44,885	46,950
Burbank	73,897	76,100
Other Osage Fields	29,500	29,900
Cushing and Shamrock	24,420	24,430
Bristow and Eastern Bristow	47,610	47,625
Northern Miscellaneous	89,015	89,020
Southern Fields:		
Healdton	17,250	17,320
Hewitt	20,550	20,970
Southern Miscellaneous	24,905	24,915
Total Oklahoma	372,032	377,230
North Louisiana	53,800	55,200
Arkansas—		
El Dorado	10,180	11,190
Smackover Light	20,400	20,215
Smackover Heavy	79,655	78,675
Other Arkansas Fields	10,015	10,585
Total Arkansas	120,250	120,665
North Central Texas	112,100	113,805
East Central Texas (Mexia, Currie, Corsicana, Powell)	128,600	153,359
Kansas	71,300	70,900
Total Mid-Continent Area	858,082	891,159
Gulf Coast	91,835	92,795
Eastern	110,490	110,465
Wyoming-Montana	149,195	158,998
California—		
Santa Fe Springs	181,000	185,000
Long Beach	230,000	229,000
Huntington Beach	69,000	70,000
Torrance	40,000	32,000
Remainder State	196,000	198,000
Total California	716,000	714,000
Total United States	1,925,602	1,967,417

Decrease, 41,815 Barrels

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Essential Facts About Teapot Dome

Whole Policy of Naval Oil Reserves Reviewed in the Light of Disclosures Before the Senate Investigating Committee

By Charles E. Kern

WASHINGTON, Dec. 24.—However great may have been the differences between the factions that have contended in respect to the wisdom or folly of having drilled the Teapot Dome, this important question can only be determined in view of the essential facts.

The idea of conservation in the case of our natural resources received its great impetus from President Theodore Roosevelt, who by precept and act forced that issue to the front in the political arena. This idea developed by the end of the Wilson administration so that among other projects three great Naval oil reserves were set aside for future use in case of emergency. In all of these measures action was too late to thoroughly protect them from drainage and from the loss of gas pressure.

Teapot Dome seemed to be the last and only hope if the 35,000 acre reserve recently set aside in Alaska be excepted. The Dome appeared to be an ideal oil reserve until a division of expert opinion brought it into the dispute that has culminated in this investigation. "Conservative" opinion of the experts of the Bureau of Mines placed the oil content of Teapot Dome at 135,000,000 barrels, and from that "conservative" figure other estimates ran as high as 400,000,000 barrels. Here was enough oil, it was believed, to conduct two or three prolonged wars in which the United States might have become involved during the next century. The most recent estimates place the content of the Dome at from 12,000,000 to 26,000,000 barrels, and no one here today will express confidence that more than the latter figure will ever be realized. This illustrates the deplorable illusion from which the nation would have been awakened in time of war if that source of fuel for the Navy had been depended upon when finally tapped to obtain a fuel supply.

Estimates Without Tests

For the errors of calculation no one is to blame. The earliest estimates were made without any tests of the oil sands from which to check up undetermined factors. When wells were drilled it was found that the First Wall Creek Sand was far less productive than was estimated and the Second Wall Creek sand was without any oil. What the deepest sand, the Lakota, will be found to contain no one of standing as a geologist will today even venture a prediction. That will be determined in the near future.

Under the regime of Secretary Daniel, the idea of retaining the oil in the Dome untouched grew into a set opinion in the Navy, and many of the officials of the Navy were so tenacious of their opinions that they could not readjust their views to discoveries that were being made by petroleum geologists. The effect of the loss of gas pressure on oil production has been appreciated only during the last several years until today it is regarded as a vital force, may cause the loss of vast stores of petroleum in the ground. First seeking to protect its oil in the Dome by the drilling of offset wells, the Navy became solicitous because of the effect of lessened gas pressure there and officers whose duty it was to care for these reserves in the light of the knowledge of petroleum geology in 1921, differed from those whose opinions had been formed by the knowledge available in previous times.

Admiral Takes Responsibility

Under these circumstances Admiral Robison, chief of the bureau of engineering, took the stand that uncertain oil in the ground far from strategic points where it would be needed in time of war should be translated into certainty by being removed to tanks at strategic points. The immediate need for this action to strengthen the Navy as a going concern, prepared for all emergencies, has been hinted at, and Admiral Robison asked the committee to be allowed to tell them that story behind closed doors which was done. Admiral Robison testified that he had the original draft of the Teapot drilling contract drawn in his office and after approval by the secretary of the Navy took it to Secretary Fall of the Department of the Interior to be executed in that department because it was that branch of the Government that had the expert knowledge and all of the machinery of personnel for best conducting such an enterprise. He testified that Secretary Fall was surprised when he presented his case to him. Also that changes made by Mr. Fall in the terms of the contract as finally agreed to improved it and were approved by him.

Approved by Mines Bureau

At this time the United States Bureau of Mines was fully in accord with the view that to obtain the oil in the Dome it should be removed at once. The United States Geological Survey was not of that opinion. Among the geologists of the Survey it was believed offset wells were sufficient to protect the Dome along the northern portion that divided it from the Salt Creek Field. They regarded the "fault" or "saddle" as a complete barrier protecting the larger portion of the reserve on the south of the "fault." Opinion is still divided as to that, but opinion is no longer divided as to the limited content of the entire structure which has been determined by drilling and which if undetermined, according to original plans for leaving it in its virgin state, would have deceived the Navy if it had placed dependence on this underground supply until the arrival of a critical time. Eventually, information gathered from further drilling will decide this mooted question.

During the investigation by the committee on public lands, Senator Walsh of Montana, has laid much stress upon what he and some others have regarded as the violation of law involved in President Harding's act in transferring the function of drilling the Dome from the Navy to the Interior Department, an act of congress having placed the Dome under the control of the Navy Department. Senator Walsh has also constantly expressed the view that a contract to exchange royalty oil from the reserves for storage for other royalty oil was not only illegal but unwarranted, resulting in a loss of petroleum that should have been kept for the emergency use of the Navy.

Interpretation at Issue

His denunciation of this arrangement hinges on the interpretation of the word "exchange" in the provision by which crude royalty oil could be "exchanged" for fuel oil in storage. On that interpretation opinion has divided among the lawyers. If law is to be determined by any rule of reason, the provision for storage facilities for the fuel oil was paramount in effecting the exchange of crude royalty oil for fuel oil to be placed in storage. Whatever criticism may be extended toward that interpretation in respect to past and present practice, there is now no excuse on the part of senators who wish to conserve all of the oil for Navy purposes, without using any of it to provide storage, for not immediately advocating an appropriation by congress for the building of storage facilities adequate for taking care of all future fuel oil that will result from the contracts for the drilling of the three naval oil reserves. The Congressional Record will be scanned during the present session of congress to see whether Senator Walsh or any other senator, takes up the important work of advocating such appropriation. They would greatly help the cause they express interest in by so doing.

It will be seen that Secretary Fall was a mere instrument of the Navy Department, which sought to have the Department of the Interior designated by President Harding to develop the petroleum deposits of Teapot Dome because it was in the scientific bureaus of that department that special knowledge existed for doing that kind of work. It would have been outside of the powers of the president to have transferred those bureaus to the Navy Department, if such transfer had been remotely appropriate.

Powers of President

The president as commander-in-chief of the armed forces of the United States, has wide powers of discretion in connection with his powers of chief executive. This view seems to be borne out by the talk of opponents of the contract for the drilling of Teapot Dome in favor of applying to the supreme court of the District of Columbia for a restraining order against the Secretary of the Interior which purpose was abandoned presumably because there was no legal ground for such action.

Under these circumstances the only questionable thing left for the committee on public lands to decide was whether in making the contract with Mr. Sinclair there was any collusion between the secretray and the successful bidder. The law placed the Naval Oil Reserves under the control of the Navy Department, and did not provide for any publication of proposals for bids. The reserves were a part of the national defense and they were entrusted to the Navy, the controlling heads of which exercised their discretion as they thought best and no one has questioned the motives of any naval officer or of the Secretary of the Navy, either under Secretary Daniels when the oil was jealously held in the ground or under Secretary Denby who agreed to have it removed to tanks at the behest of his subordinates under whose supervision the reserves came.

Few Bidders

Those who know Secretary Fall are familiar with his positive and direct methods of business. The fact that the contract was a matter under negotiation was widely known among oil men so that President Beaty of The Texas Co. offered a bid which upon being explained to the committee on public lands was shown to be less advantageous to the Government than was the Sinclair contract. There were very few prospective bidders for that contract capable of qualifying for so great an undertaking.

An incident of this transaction is the fact, known to everybody, that the oil content of Teapot Dome has proved to be a sad disappointment, and the questionable profit of the undertaking entered into by Mr. Sinclair proves that he took a chance on the vast expenditure incurred, whereas the Government received a definite advantage in obtaining the drilling, the Mid-Continent price for its oil, and the pipe line from the Wyoming Field to Kansas City. But that is another story that can best be told after Naval Oil Reserve No. 3 has received its fullest possible development.

PRAIRIE PIPE LINE MEN HOLD THEIR ANNUAL GET TOGETHER

INDEPENDENCE, Kans., Dec. 21.—The annual get together meeting of the Prairie Pipe Line Co. field and office employes Wednesday and Thursday was one of the most successful ever held. It was attended by Texas, Oklahoma, Kansas, Missouri and Illinois employes in places of authority and combined business and pleasure in a way that was most interesting and entertaining.

The principal business was conducted on Wednesday in an all-day session, at which the work of the past year was reviewed and plans were made for the work of the coming year. The business meetings were held in the company's big office building where addresses were made and papers read and a general discussion was engaged in.

In the evening a banquet was given in the Booth Hotel followed by a musical and entertainment program by the Riley-Ehrhart band and orchestra and a program of well prepared speeches and papers. N. E. Wagner, chief boiler maker, of Tulsa, read a paper on "Acetylene Welding;" A. W. Drohen, purchasing agent, Independence, spoke on "Purchasing"; C. E. Earle, truck inspector, of Independence, on "Highway Equipment;" W. F. Gates, president of the Prairie Pipe Line Co., on "From the Well to the Lamp;" J. D. Moroney, division superintendent, Bartlesville, Okla., on "The Pipe Line in the Oil Industry;" R. G. Lewis, master mechanic, of Tulsa, on "Combustion Engines," and H. C. Black, tax commissioner, Independence, on "Taxes."

President William F. Gates presided at the business meetings and was toastmaster at the banquet.

On Thursday many of the employes remained and renewed old acquaintances and held informal discussions and interchanges of ideas on the work in which they are engaged.

The following were present:

Allen, Rance V., foreman of carpenters, Eastland, Tex.
Angove, L. H., division superintendent, Bowie, Tex.
Barr, B. V., district foreman, Ardmore, Okla.
Bates, W. F., right of way agent, Tulsa, Okla.
Black, H. C., tax commissioner, Independence, Kans.
Bollinger, L. E., civil engineer, Independence, Kans.

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Years of Throat-Cutting in Oil World

Declares W. H. Gray in Summing Up Record and Analysing Causes Which Racked the Petroleum Industry in 1923

By W. H. Gray
(President National Association of Independent Oil Producers)

Last summer, when the Mid-Continent oil producer and refiner were losing their market for both crude and refined oil in all of the territory known as Seaboard Territory, when the small independent producer in the Mid-Continent Field was being abandoned to his fate, while those whom he had furnished with oil for many, many years were rushing out to California, indulging themselves in a cheap but temporary supply of crude oil, I told some of my friends that I would not rock the boat as long as there were so many of us in it. At best, it would have at that time simply made a bad situation worse.

Now that the gasoline season is about over; the production in California subsiding; the price of crude oil in the Mid-Continent Field at the lowest figure in the history of the industry, cost of development considered; gasoline selling for less than bottled water; the time has arrived to review the facts which caused this condition in the industry, to fix the responsibility, if possible, where it belongs, and to set forth any lesson which may be drawn from our experience during this year.

The Law of Supply and Destruction

There is one outstanding fact which must impress itself upon everyone in the industry, and especially upon those who have their money invested in it, and the larger the investor the more deeply will he be impressed—and that fact is this:

> That in a year in which there has been in the United States the greatest production of crude oil of all time, the greatest consumption of crude oil, the greatest consumption of gasoline, the greatest single increase in the consumption of gasoline during one year, the industry as a whole found itself unable to make any money.

What a criticism upon the management of those large units of the industry, when their only reply to the question of their investors as to why they did not make any money is that there was just too much prosperity.

The year 1923 will ever stand out as one of crimination and recrimination, throat-cutting and blood-letting within the industry, from which no one profited but all lost. Leaders of the industry shou'd mull this over and make a few resolutions for the new year. I am wondering what some of the high-salaried boys, who made little or no effort to save the situation and make it a profitable year for the industry, are going to tell the stockholders this year. What reason are they going to give for their failure to reflect this great opportunity for prosperity in the balance sheet? Too much crude? Yes, I suppose that will be it.

But is that the reason?

Who Is to Blame

Will the high officers of the great units of the industry be permitted to put their investors off with a mere wave of the hand and the laconic statement "Too much crude!" And if there has been too much crude, who more than they have been to blame for it?

Some there will be who will say that it is a mere result of the law of supply and demand. But for the Mid-Continent producer, especially the small ones, it turned out to be the law of supply and destruction, with the accent on "destruction."

There are others who will say that the failure of the industry to prosper in this year of plenty is the result of the application by the Standard Oil group of the rule of "The Survival of the Fittest." This theory must also be cast in the discard. In a year such as we have gone through, the rule of the survival of the fittest is, of course, working overtime. However,I do not believe that any one company, or group of companies, with any sinister purpose set it in motion. There was a time in the history of the Standard Oil group when this might have been done to some degree of advantage to themselves, but that time has long since passed—the cost would be greater than the gain.

Let us examine the various occurrences and changes during the past year and see if we cannot arrive at a logical conclusion as to the cause of the disaster which overtook us in the midst of the greatest gasoline season we ever had; who, if anyone, was responsible for this condition; and if it could have, to any degree, been avoided.

The Beginning

It was about the middle of November last year that it became apparent to close students of the general oil situation that some California crude would perhaps be moved from the Pacific side to the Atlantic Seaboard during the year 1923. However, the prospect did not seem to be alarming. The movement had not fully gotten under way. But as we advanced into the new year it began to be more and more apparent that this movement would increase. At that time several of the large buying agencies were drawing on stocks in the Mid-Continent area. The average weather throughout the country continued good up until the middle of January, 1923, and there was a heavy demand for gasoline. Independent refiners were taking large quantities of crude oil and were storing a large amount of gasoline.

Along in the closing days of February, with their storage full, this demand, due to weather conditions, was suddenly cut in two. The independent refiner went into a panic and began to dump his refined products on the market, and also to release connections which had to be absorbed by the larger units. It may be said that this was the beginning of the disaster which was to follow.

For a while the large purchasing agencies absorbed these connections. The situation was quickly converted from a draft-on-storage to a put-in-storage. It was then apparent to all students of price structure that independent refiners throughout the Mid-Continent Field had over estimated their capacity to store gasoline, had taken on too much crude, and that it would have been better for the Mid-Continent area had stocks not been drawn on during the early winter of 1922 and 1923, when the fatal mistake had been the accumulation of large stocks of gasoline in the Mid-Continent territory, but there was no help for it, the damage had been done and the market was bound ultimately to go to pieces in the Mid-Continent territory if outside support was not forthcoming.

Stock Data Lacking

Could this have been avoided? No, not entirely. However, if the industry had been furnished each month with accurate, up-to-date statistical data regarding stocks of refined products on hand, production of crude, etc., I believe the situation wouldl have been much easier to handle.

No substantial support arrived from the Atlantic Seaboard refiners or from the export market, and there was nothing for the independent refiner to do but curtail his runs and release his connections. The tank car market was slowly crumbling while the tank wagon prices continued for a time to hold fairly steady. By the first of May the Seaboard refineries were materially cutting down their purchases of Mid-Continent crude, with no intention of assuming any responsibility in the matter of taking care of Mid-Continent crude.

Producers both large and small had been running the drill all fall and winter at as rapid a rate as their organization would permit, taking no warning, apparently, from the rapidly crumbling gasoline market. However, by the first of May it became apparent to many of the principal factors in the Mid-Continent territory that drastic efforts to curtail development must be undertaken or complete demoralization would follow. The production of Oklahoma was then 530,000 bbls. per day.

Markets Slipped Away

With the production of Oklahoma mounting to above 500,000 bbls., and the Eastern markets slipping away from us, it was apparent to all that steps must be taken to curtail production in Oklahoma, Texas, and other points, and especially so in Oklahoma. Accordingly, under the leadership of E. R. Perry of Cosden & Co. and Henry McGraw of the Gulf company, a shut-down committee was organized to undertake the curtailment of the rapidly increasing production in the Tonkawa and Burbank fields in Oklahoma. The shut-down agreements, engineered by these two able leaders, was one of the most constructive and conserving pieces of work ever seen in the industry, and had it not been for these agreements, and particularly the one at Burbank, demoralization would have, no doubt, overtaken the industry in the early part of July. Be it said, however, to the credit of the producers, whether they be large or small, that there was a spirit of cooperation never witnessed before.

There was but one fly in the ointment at any time and that was the private contracts entered into by the Seaboard refineries and certain operators in the Burbank and Tonkawa fields, calling for specific delivery of a certain amount of crude, the details of which contract, however, no one was permitted to know expect the contracting parties. The contracts had a double effect. They gave to certain operators a larger market than they would be entitled to under a fair proration and at the same time compelled them to continue development work when development work was being curtailed. It was one of the most potent factors in forcing the general decline. These Seaboard refiners simply came into our apple orchard, picked the choicest fruit and left the balance to rot in the field.

Proration of Runs

By the first of June California was producing a tremendous amount of oil; approximately 750,000 bbls. per day, and it was apparent to all students of price structure, that we would be unable, in the Mid-Continent Field, to cope with California competition if the Atlantic Seaboard refineries were determined to go into the Pacific for any larger percentage of their crude supply; and it did not take us long to make up our minds that they were going to do it.

There were a number of people who thought that all the Mid-Continent producer had to do was to lower his price to a point where he could meet California competition. Prominent among these were the leading lights of the National Marketers Association. However, the large buyers and producers of the Mid-Continent knew that, had the price in the Mid-Continent been reduced to 60 cents a barrel, California, during the period of flush production, would have met that price and taken the business. The only thing we could do was to get the best price we could for what we could sell and keep the balance in the ground, as far as possible.

In order to do this, various methods were employed, principal among them being a gradual, but orderly reduction in crude prices by the major purchasing agencies, the shutting down of every unnecessary well, by producers, both large and small, the prorating of purchases by the large purchasers of crude.

There were some people in the industry who thought that the prorating of runs, or, to be more exact, the curtailment of purchases by the large purchasing agencies was a mistake; that the large agencies should have made a drastic cut in the price; bought all the oil and run the surplus to storage; but it is apparent now that the policy adopted was the correct one and the only regret is that it was not made as effective as it should have been in two of the large pools; viz., Tonkawa, in Oklahoma and Powell, in Texas.

Had Price Been Cut

Had the price of Mid-Continent crude been cut to a storage basis in June or July, it would have destroyed the credit of the industry and literally destroyed hundreds of small producers.

WAS TOO MUCH CRUDE THE REAL CAUSE?

The year 1923 will ever stand out as one of crimination and recrimination, throat-cutting and blood-letting within the industry, from which no one but all lost. Leaders of the industry should mull this over and make a few resolutions for the new year. I am wondering what some of the high-salaried boys, who made little or no effort to save the situation and make it a profitable year for the industry, are going to tell the stockholders this year. What reason are they going to give for their failure to reflect this great opportunity for prosperity in the balance sheet? Too much crude? Yes, I suppose that will be it.

But is that the reason?

The Prairie Oil & Gas Co., the dominant factor, is entitled to great credit for its efforts to maintain a fair price to the small producer during a time when it was losing so many of its buying customers.

Proration of runs was put into effect by the Prairie Oil & Gas Co. on June 26. At the time of the proration order the prices maintained by it were the prices effective as at May 12, which prices were as follows:

Below 28 degrees Baume gravity	$1.10
28 degrees to and including 29.9 degrees Baume gravity	1.20
30 degrees to and including 32.9 degrees Baume gravity	1.30
33 degrees to and including 34.9 degrees Baume gravity	1.45
35 degrees to and including 36.9 degrees Baume gravity	1.60
37 degrees to and including 38.9 degrees Baume gravity	1.80
39 degrees to and including 40.9 degrees Baume gravity	2.00
41 degrees Baume gravity and above	2.20

And it was lifted by the Prairie on November 8 when it posted the following prices, which prices were buyers' prices, not sellers' prices which represented that price at which both the Prairie and everybody else who had any money was willing to buy oil for storage:

Below 33 degrees Baume gravity	$ .75
33 degrees to and including 39.9 degrees Baume gravity	1.00
40 degrees Baume gravity and above	1.25

In this connection it may of significance to note the fact that the last and final cut should have been of almost simultaneous action on the part of the Humble Oil Co. and the Magnolia Petroleum Co., both of them subsidiaries of the Atlantic Seaboard refineries. As for instance, on October 19 the Humble Oil Co., which was not at that time prorating runs but which was taking 100 per cent of the oil from its North Texas customers, running half of it to storage and paying for half of it, posted the following prices:

Below 30 degrees gravity	$ .80
30 to 32.9	.90
33 to 35.9	1.00
36 to 38.9	1.15
39 and above	1.30

On October 13 the Magnolia Petroleum Co. posted the following set of prices, coupled with an announcement that that was the price at which it would purchase and pay for 100 per cent of the oil:

Under 28 degrees	$ .50
28 to 30.9	.70
31 to 32.9	.90
33 to 39.9	1.10
40 and above	1.25

Might Have Been Stabilized

And on October 30 it followed this up by making it effective in Oklahoma and Kansas, and by so doing made it possible for any producer to switch from any other line to its line and get 100 per cent of his oil run. Had it not been for the action of these two concerns coming when it did, I believe prices would have stabilized at a very much higher point, as it was only a few weeks later that the great Powell Field suffered a collapse.

The dire misfortunes of the producer in the Mid-Continent Field in 1923 is attributable not so much to the larger production in this area as it is to the decision of Atlantic Seaboard refineries to press every tanker they could get their hands on into the service of moving oil around from California to the Atlantic Seaboard. The Standard Oil Co. of New Jersey even went so far as to charter steamers from the Gulf Co. and The Texas Co. and put them in the California service, thus giving one the impression that, while The Texas Co. and Gulf Co. were doing all they could toward relieving the situation in the Mid-Continent by taking care of their old customers in the production business, abstaining themselves from getting into the California scramble for a temporary supply of cheap oil, the Jersey company was doing all it could to bring about a demoralized condition in the Mid-Continent.

The Mid-Continent producer does not deny that the Seaboard refiners had a right to go to California and get that cheap crude, but he does feel that the leasing of every available tanker in the country by these large companies, pressing them into service moving California crude around to Atlantic refineries, to displace the crude being produced by men who had produced oil for them for years, was a careless, reckless and destructive policy.

Posted vs. Contract Price

It has been the policy of the industry in the Mid-Continent area for many years for the major buyers of crude oil to post a price. That is to say, to name a price at which they will buy oil and buy from all alike, paying each customer the same that they pay the others. I am an advocate and believer in this policy. I believe that 90 per cent of the producers in the field have the same idea as I have in regard to this policy.

Thinking producers recognize the value of competitive price-making companies and, recognizing it, they should and, in fact, do practice recognition of it, and any company which does not appreciate this is strolling up a blind alley and is ultimately doomed to collide with a brick wall. The producer will force him either out of the market or out in the open.

It is fitting at this time to discuss the policy of the two largest oil companies in the world, viz., the Dutch-Shell Co., controlled by the government of Great Britain, and the Standard Oil Co. of New Jersey, with reference to their policy in the Mid-Continent Field, I do not hesitate to call them to account in the matter and to ask them to state frankly whether or not they endorse the time-honored policy of purchasing crude oil on a posted price basis.

Jersey's Purchases

The Standard Oil Co. of New Jersey operates in Oklahoma under the name of the Carter Oil Co. and the Oklahoma Pipe Line Co., both 100 per cent owned subsidiaries. It also operates in southern Oklahoma under the name of the Humble Oil Co., a 60 per cent owned subsidiary. However, its purchases of oil are made under the name of the Carter Oil Co., which has a production of about 25,000 bbls. per day. The pipe line system is composed of one line running from Kansas south through Oklahoma and connecting in with its main pipe line system at Shreveport, going thence to Baton Rouge. This line has a capacity of 40,000 bbls. per day. It has a line branching off of this line somewhere near the Oklahoma-Arkansas border running into the Ardmore district. This line is called the Healdton-Hewitt branch line and has a capacity of 20,000 bbls. per day. Thus, it will be seen that this concern has a pipe line capacity out of Oklahoma of 60,000 bbls. per day and does not post a price, but solicits and buys oil, using in some instances Prairie Oil & Gas Co. quotations as a base price, and in other instances using a private contract, the terms of which are not generally known. This company's lines have a capacity equal to the combined capacity of both the Gulf and The Texas companies, and yet both the Gulf Co. and The Texas Co. have posted prices in this area since time immemorial.

Purchases by the Shell

The Shell interests own the Roxana Petroleum Corp., which operates and owns the Ozark Pipe Line system, which system of line runs from the southern part of Oklahoma to St. Louis. It has a production of its own of about 20,000 bbls. per day, a refinery of 25,000 bbls. capacity at East St. Louis and one of 10,000 bbls. capacity at Arkansas City, Kans. It purchases daily about 15,000 bbls. It has never posted a price and has never assumed the responsibilities which it should have assumed but sets out in its division order that it will pay what the Prairie Oil & Gas Co. pays. Its daily purchases, outside of production, are equal to or in excess of either The Texas Co. or the Gulf Co.

It seems to me that it is high time that companies or corporations the size of the Shell and Standard of New Jersey were getting in and quoting a price, accepting their share of the responsibility for price-making and joining in wholeheartedly in programs of proration and curtailment of development when these periods come upon us. They subject themselves to the charge of monopoly by their present system, which I am sure it is their desire to avoid. Again it seems rather ridiculous that two billion-dollar corporations should base on another company's price, and especially upon the same company's price. If I did not know of the intense competition between these two concerns I would charge them with monopolistic intent.

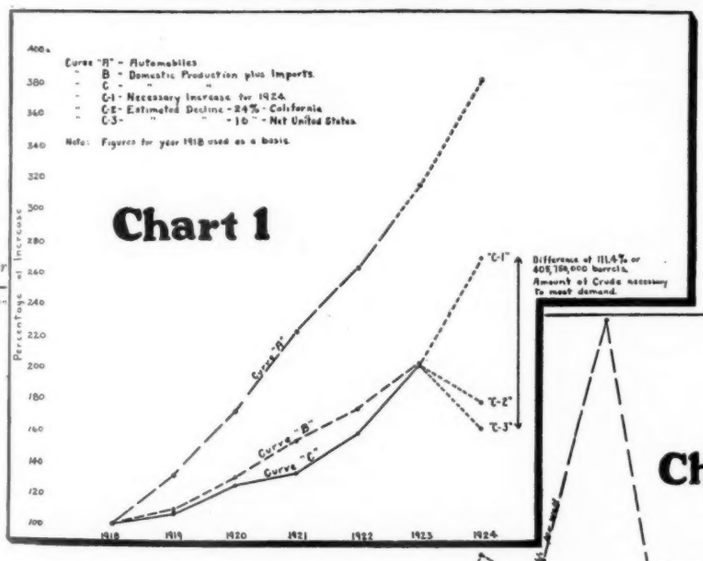
California Shipments

Marine executives of the Atlantic Seaboard Refineries should receive a bonus this year for the rapidity with which they put the movement of crude from California to the Atlantic seaboard

(Continued on Page 106)

The Nation's Need for Oil in 1924

By [illegible]
Petroleum Engineer



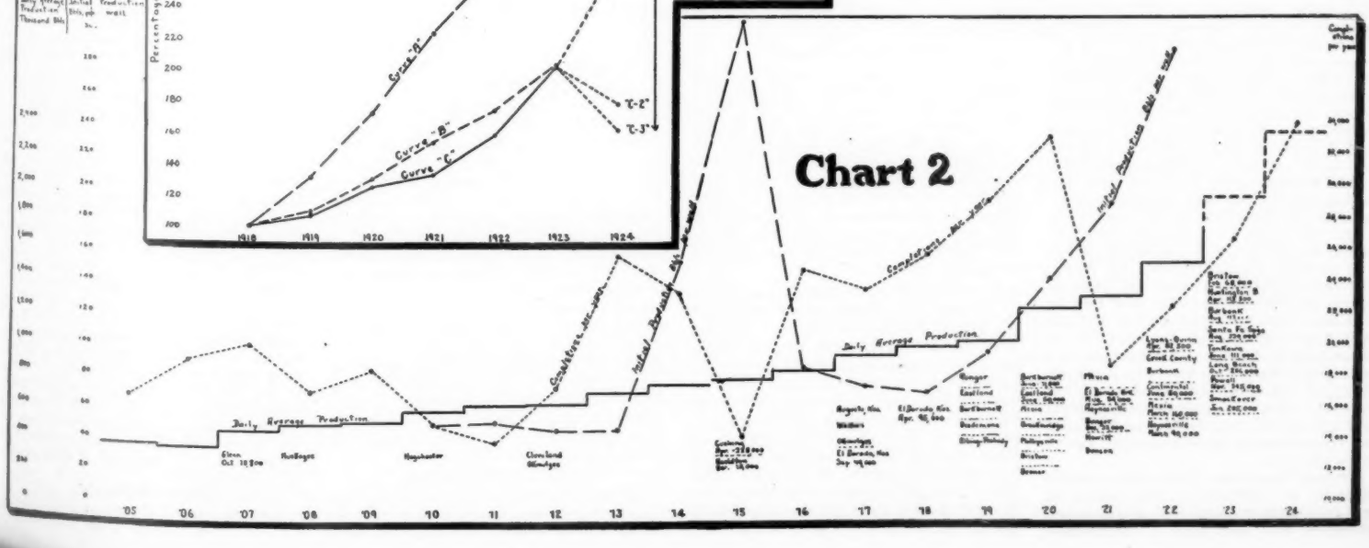


CHART 1. The increase in autos and crude production in the last five years with prospective increases or declines forecasted for 1924. To keep pace with the increase in automobiles, and other consumption crude production must reach 875,000,000 barrels in 1924. The indications are that the present production will fall to 470,000,000, unless new pools are found.

CHART 2. Daily average productions, completions, and initial production in barrels per well. In order to produce the necessary amount of crude to supply the demand there must be drilled in 1924 over 34,000 wells with an average initial production of 225 barrels, which is an average of the four best years.

Gasolines and Fuel Oil Prices Higher

Holiday Lull Does Not prevent Refiners advancing Quotations. Future Trend Depends on Crude and Tank Wagon Markets

By C. O. Willson

The usual holiday lull did not serve to stop the Group 3 refined market from further advances during the past week. As is customary at the year end, there has been comparatively little trading in any products since Saturday, with many offices closed from Saturday until Wednesday. It was expected that this holiday situation would continue until the first of the year, barring developments which are not expected to materialize until then.

The latter part of last week practically all grades of gasolines advanced from ¼ to ½ cent in price and several plants, including two of the major refiners of this area, are quoting New Navy gasoline a full cent higher than last week. Fuel oil advanced an additional 5 cents and the price situation in regard to all kindred products was either firm or advancing. Natural gasolines, which have flooded the market since the latter part of October, made an about face in price trend and all grades are from ¼ to ¾ cent higher. Kerosene and other grades of burning oils, so far as Group 3 is concerned, are not so freely offered as the previous week and prices on the 41-43 grades are slightly higher.

New Navy Advance

The general advance in New Navy developed following the action of Cosden & Co. and the Empire Refineries, Inc., which advanced their price to 8½ cents to the trade the latter part of last week. Until this advance was made some gasoline was available in Group 3 for 7 cents. Following the action of Cosden and Empire, these sources of supply advanced their prices to 7½ cents and in a few cases, at least, to 7¾ and 8 cents. Buyers for resale at this writing were still able to buy little material at 7½ cents, but a check made by several buyers revealed the fact that a majority were asking 7¾ cents and above for spot shipments.

Some buyers of New Navy who have been largely out of the market since princes began to advance were forced to make some purchases during the past week. Some of these purchases were to cover short sales made the latter part of November to cover December business. These buyers were forced to take losses and for that reason were buying as little as possible.

January Outlook

December business in gasoline is now largely covered and the greatest interest during the past week centered in January deliveries. Buyers were generally willing to pay the present prices for delivery over the first 15 days of the coming month, and in some cases over the entire month. However, there was an apparent reluctance on the part of both buyers and sellers to quote over a longer period than the first half of the month except at prices considered prohibitive at the present time. Some refiners were asking 8 cents for New Navy for delivery over the first half of the month, but so far as known little business has been placed at that price or any other. There are, however, both buyers and sellers anxious to place some January business before the first of the year and barring a general crude or a Standard of Indiana tank wagon advance or some similar development, it is probable that they will get together before the first of the month. However, unless conditions change, it is apparent that in January both buyers and sellers will rely on the spot market for their supplies more than any month since early fall.

Perhaps the crux of the entire market situation is contained in the opinion of one prominent refinery sales manager and executive who said that " the present gasoline price structure would hold and probably advance, provided the expected Mid-Continent crude and Standard of Indiana tank wagon advances materialized before or right after the first of the year." In the opinion of this executive and of many other market observers, the advances of the past month have been brought about solely by an expected advance in crude prices to affect Oklahoma and the entire Mid-Continent area. During the past week many of the marketing and refining fraternity expected a crude advance almost daily and they, with many others, are certain that it will materialize at least by the first week of the new year.

Pennsylvania Advances

This feeling became stronger when on Wednesday Pennsylvania crudes advanced 25 cents. This was the second advance for Pennsylvania crudes since the general crude situation began to improve. Although Pennsylvania crudes have suffered more than Mid-Continent grades from California competition during the past year as a comparison of price reductions will show the two advances unquestionably do indicate a probable price trend in the Mid-Continent.

This latest Pennsylvania advance serves to minimize the prediction of many that the Prairie Oil & Gas Co. and the Sinclair Crude Oil Purchasing Co. would be slow in advancing Oklahoma crude. Leading market observers agree with the refinery executive previously mentioned, that this advance must come early in January if the present strength in refined markets is to continue. Refiners are extremely anxious that present gasoline prices at the refineries be maintained for therein lies the hope that the Standard of Indiana will see fit to advance the tank wagon prices throughout its territory from 1 to 2 cents, thus affording a measure of relief to those refiners who dispose of a substantial part of their output through marginal contracts. In this connection it is significant that the Roxana Petroleum Corp. of St. Louis, Mo., has advanced its spot market price on New Navy to 8½ cents, in line with that of Cosden and the Empire companies. This company, which sells its gasoline output in direct competition with Group 3 refiners, acquired a large number of new marginal contracts in the fall by outbidding Mid-Continent refiners. Some of these contracts, it is understood, are netting the company at its St. Louis plant, about 4 cents at the present time.

Market Relations

As has been explained in these columns previously the refined market is largely a reflection of expected crude and tank wagon markets. Instead of waiting for these developments to materialize, refiners so far as possible are anticipating them with higher prices. The larger independent refiners of Group 3 and the Mid-Continent area are able to do this as they have the storage facilities to handle any surplus brought about by a slower movement. These refiners, basing their contention on the crude situation, expect a gradual advance in crude prices over the remainder of the winter with higher tank wagon prices. It is generally conceded, however, that the tank wagon advance will probably not develop as speedily as desired with many not anticipating a substantial advance until spring.

Gasolines and Naphtha

The market situation in regard to New Navy, which has been explained, would cover the situation applying to other grades of gasolines and naphtha. There were no large purchases of the higher gravity gasolines during the past week and it is doubtful if any could have been placed had there been buyers in the market. There was a fair domestic movement of 64-66, 375 gasoline but it was confined to small shipments. Reports that there were export buyers for this grade in adjoining markets served to aid the price situation. Buyers seeking the 60-62, 400 grade said that very little was available from refiners in Group 3.

The demand for naphtha was probably more active than any of the straight run products. Refiners had inquiries for all gravities of naphtha, both for spot delivery and shipment over January. Not all refiners make naphtha and very few have had any material to offer for December shipment since the middle of the month.

Motor Natural Gasolines—(Blends)

The demand for naphthas is a result of the blend situation. The blend market has been comparatively quiet throughout the past year due to the low prices for straight run gasolines. Marketers state that since the straight run gasolines prices have been advanced, however, they have had numerous inquiries from jobbing customers seeking information regarding the availability of the blends. These jobbers state that they cannot afford to pay 7½ cents or more for New Navy gasoline until their tank wagon price is advanced. This situation has resulted in a largely unexpected demand for both naphtha and natural gasolines. The latter is obtainable but scarcity in naphthas is very apparent. Blenders are unable to supply the demand and as a result the prices have been advanced so that they are within ¼ or ½ cent of New Navy. Shipments of the best grade of blends are reported as high as 7½ and 7¾ cents. The bulk of the movement, however, is under these prices.

Natural Gasolines

All grades of natural gasolines have advanced during the past week. The demand for the absorption grades has been so strong that very little material, especially Grade A, is now available for immediate shipment. The scarcity of and higher prices for the absorption grades was reflected in the demand for Grades C and D. The latter two grades have not advanced in price as much as A and B and they are available in larger quantities for immediate shipment. Several of the larger natural gasolines manufacturers are sold up over the balance of the month and in two cases, at least, they will have no Grades A or B to offer over January.

Several buyers are in the market for their January supplies. Quotations for January delivery have been advancing daily. Both blenders and refiners are said to be buying larger quantities. There is considerable difference of opinion among those in touch with market conditions as to whether the price advance is justified and can be maintained. Some continue to state that regardless of an advance in their straight run market, correspondingly higher prices in natural gasolines at this time are premature. It is known, however, that leading manufacturers do not share this opinion. Confident that they are in a position to share in the improved crude and refined market situation, they are prepared to limit the amounts of their product offered on the current market through storage programs and thus maintain a firm or advancing market.

Fuel and Gas Oils

Outside the 5-cent advance in prices,

(Continued on Page 111)

REFINED MARKET BAROMETER

Considered as a whole the price tendency in refined markets for the entire United States has been upward during the past week. Although a holiday period brought a less active market in practically all refining and marketing areas refiners again advanced their gasoline prices in the Southwest and this tendency was apparent in several other areas. The higher prices are due to the expectation that crude and tank wagon prices will be generally advanced in the immediate future. A fair to strong demand for fuel oil was reported from all refining areas and prices were either firm or advancing. Strong demand for natural gasolines and blends and prices on both products are higher. General kerosene market situation unchanged. Strong demand for neutrals and prices have been advanced in Eastern markets.

Mid-Continent—Price tendency upward. New Navy advanced ½ to ¾ cents in all areas except North Louisiana where increase was ¼ cent. Practically no naphtha available regardless of price in all areas. Higher gravity gasolines either advanced or firm with fair domestic movement. Some export buying reported in North Texas and North Louisiana but buyers for foreign consumption generally are refusing to pay the prices asked by refiners. Fuel oil generally strong with no general price changes. Refiners refusing to give price concessions for kerosene and prices are firm. Movement of neutrals continues strong with no general price changes. Natural gasolines show strength in all areas and prices on all grades have been advanced.

Pennsylvania—General improvement in market tone. Another 25-cent advance in Pennsylvania crudes expected to be reflected in higher prices for practically all refined products. Refiners continue to pay premimus for crude supplies. Demand for cylinder oils very strong and prices have been advanced. Large Standard companies among the buyers. Refiners endeavoring to boost their gasoline prices with fair success. Kerosene unchanged. Fuel oil movement improved with no general price changes. Strong demand for wax and prices are advancing.

Atlantic Seaboard—Strength of lubricating oils and wax featured market. Extra light filtered cylinder and 600 steam refined advanced in price. Wax very scarce with buyers constantly advancing their offers. Export movement of all refined products good at the present time with a noticeable scarcity of contracts for future delivery. Believed that stocks of foreign buyers are heavy. Larger companies are planning on reducing transportation facilities through greater use of waterways.

Chicago—Market dominated by sellers who are constantly advancing their prices, especially gasolines. Some refiners have advanced their New Navy prices so that they are out of spot market. No naphtha available for spot shipment. Demand for winter grade gasolines aided the higher gravity gasolines. Strong demand for blends. Fuel oil prices advanced. Kerosene demand slumps slightly. Natural gasolines strong.

Stock Broker Tells Senate Investigators About Mammoth Stock

WASHINGTON, D. C., Dec. 22.—Jesse L. Livermore, New York stock broker, gave to the Senate Public Lands Committee a recital of some intimate details of operations in Wall Street, and, incidentally, upset popular belief as to a broker's commission.

Appearing as a witness in the inquiry into the leasing of naval oil reserves, Mr. Livermore described the formation in October, 1922, of a group to make a market for the stock of the Mammoth Oil Co., the Harry F. Sinclair subsidiary which was organized to operate Teapot Dome Reserve No. 3.

As a result of an advertising campaign, the witness said, public subscriptions were received for 151,000 shares at $40 a share, and 109,000 shares were allotted. These shares subsequently were repurchased by the syndicate interested in the issue at prices ranging from $40 to $56.50. On the entire deal, involving the sale and repurchase of more than $10,000,000 worth of stock, Mr. Livermore testified that his personal return was $9,916.

"Why did you have to repurchase?" asked Senator Walsh, Democrat, of Montana.

"To furnish a stable market," was the reply. "That was why I was retained."

Many of the subscriptions, the witness explained, were from "professionals," who were certain to let the stock go at the first opportunity to obtain a price higher than that of issue.

"Unless there was a buying agency to take these offerings," he said, "the public would have no confidence in the issue."

Much of Mr. Livermore's testimony covered the same ground as the Senate investigation last Spring into oil prices.

Members of the committee expressed some difficulty in understanding the dual capacity in which the witness had served Mr. Sinclair, first as distributer of the stock and finally as agent for its recovery. Answering questions along this line, Mr. Livermore said that Mr. Sinclair had expressed disappointment over the results of efforts to create a market, declaring that he would rather pocket the loss necessary to regaining complete control than to allow a few thousand shares to remain out "to be kicked about."

"He told me to get all outstanding shares for him as cheap as possible," Mr. Livermore went on," and this led to the second phase. To prevent a runaway market, I was forced to sell some stock now and then, even when buying it in."

Senator Smoot, Republican, of Utah, pointed to the witness' personal record of transactions as showing that at one time he had actually purchased more stock than was outstanding.

"Yes, but I never viewed this as a legitimate short interest," the witness agreed. "It seemed more likely to be some insider selling short against stock held in his deposit box."

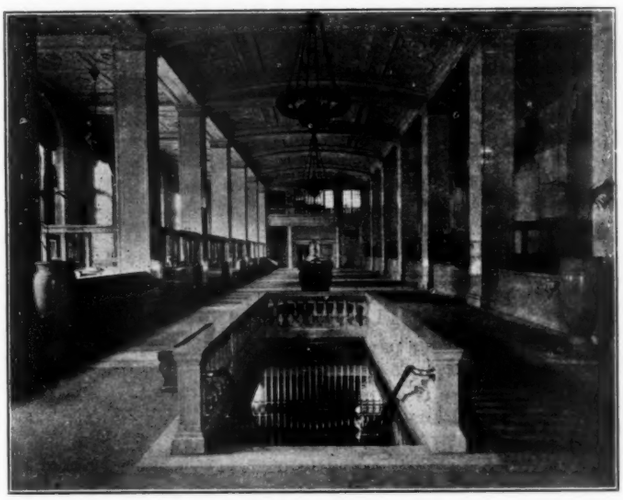
PIPE LINE MEN HOLD ANNUAL GET TOGETHER

(Continued from Page 19)

Brocklebank, F. F., master mechanic, Wellsville, Mo.
Browne, H. E. superintendent telegraph department, Independence, Kans.
Brynes, H. E., chief oil dispatcher, Independence, Kans.
Campbell, W. C., district foreman, Walters, Okla.
Cates, J. B. F., counsel, Independence, Kans.
Clark, W. L., division engineer, Eastland, Tex.
Conry, W. F., division superintendent, Tulsa, Okla.
Cook, H. D., cashier, Independence, Kans.
Cornell, J. W., run repartment, Independence, Kans.
Coyle, George, general superintendent, Tulsa, Okla.
Coyle, J. A., district foreman, Nowata, Okla.
Darby, Henry, field accountant, Tulsa, Okla.
Donnewald, A. H., civil engineer, Independence, Kans.
Dorsey, H. S., assistant auditor, Independence, Kans.
Drohen, A. W., purchasing agent, Independent, Kans.
Drohen, J. W., machinist, Independent, Kans.
Dudley, L. L., chief accountant, Independence, Kans.
Dutton, J. E., district foreman, Ramona, Okla.
Earle, C. E., truck inspector, Independence, Kans.
Elder, T. E., district foreman, Florence, Kans.
English, J. T., division engineer, Kansas City, Mo.
Fannon, M. E., chief clerk, Tulsa, Okla.
Fitzpatrick, W. V., foreman of gaugers, Chanute, Kans.
Flannelly, T. J., general counsel, Independence, Kans.
Flynn, J. M., foreman of gaugers, Ardmore, Okla.
Friedhaber, Edward, master mechanic, Galesburg, Ill.
Gates, W. F., president and general manager, Independence, Kans.
Gibson, J. K., right of way agent, Carrollton, Mo.
Gibson, J. S., right of way and claims, Independence, Kans.
Glass, J. W., right of way agent, Independence, Kans.
Gupton, W. L., right of way agent, Eastland, Tex.
Hare, R. G., treasurer, Independence, Kans.
Hinley, R. G., district foreman, Cleveland, Okla.
Horan, T. J., master mechanic, Kansas City, Mo.
Horsley, B. M., assistant district foreman, Powell, Tex.
Howard, S. J., chief mason, Tulsa, Okla.
Jaeger, R. L., division engineer, Tulsa, Okla.
June, C. I., district foreman, Eastland, Tex.
Kimble, E. W., right of way agent, Ardmore, Okla.
Kinkead, D. R., district foreman, Paola, Kans.
Klumph, W. E., district foreman, Tulsa, Okla.
Kors, P. V., assistant secretary, Independence, Kans.
Kountz, C. H., vice president, Independence, Kans.
Laughner, R. B., division superintendent, Galesburg, Ill.
Leary, D. F., division superintendent, Eastland, Tex.
Leonard, Harold, chief clerk, telegraph department, Independence, Kans.
Lewis, R. G., master mechanic, Tulsa, Okla.
Linehan, J. J., assistant general superintendent, Tulsa, Okla.
Linehan, J. M., chief tank strapper, Tulsa, Okla.
Lodge, C. R., assistant treasurer, Independence, Kans.
Loftus, M. J., division superintendent, Independence, Kans.
Lott, T. R., assistant general superintendent, Eastland, Tex.
Louy, F. A., assistant treasurer, Independence, Kans.
Manning, R. M., foreman of gaugers, Tulsa, Okla.
Mason, P. B., attorney, Independence, Kans.
McClelland, J. E., auditor, Independence, Kans.
McFarland, Frank, division superintendent, Mexico, Mo.
McGee, Paul, chief tank strapper, Tulsa, Okla.
McGreal, J. A., chief clerk, Kansas City, Mo.
McPoland, C. E., general superintendent, Kansas City, Mo.
Midkiff, W. A., district foreman, Eldorado, Kans.
Millard, George, accountant, Kansas City, Mo.
Mooney, J. W., district foreman, Ranger, Tex.
Moore, J. D., general line foreman, Shawnee, Okla.
Moroney, J. D., division superintendent, Bartlesville, Okla
Murphy, J. H., traffic manager, Independence, Kans.
Murphy, William, general line foreman, Humboldt, Kans.
Murren, J. H., oil dispatcher, Kansas City, Mo.
Nicholson, A. J., chief clerk, Eastland, Tex.
Paul, W. O., district foreman, Bristow, Okla.
Peters, E. E., machinist, Ranger, Tex.
Phelps, D. F., general line foreman, Weatherford, Tex.
Rhodes, W. S., over and short department, Independence, Kans.
Richmond, Michael, general line foreman, Carrollton, Mo.
Rodgers, J. B., right of way agent, Bartlesville, Okla.
Rounds, E. E., district foreman, Tulsa, Okla.
Rounds, W. M., district foreman, Caney, Kans.
Rowe, E. W., foreman of gaugers, Bartlesville, Okla.
Shields, C. O., district foreman, Mexia, Tex.
Shumaker, R. F., tank gauging engineer, Independence, Kans.
Smith, Laurent B., chief tank strapper, Independence, Kans.
Smith, Leo B., foreman of gaugers, Caney, Kans.
Smith, M. R., district foreman, Neodesha, Kans.
Speer, W. P., assistant purchasing agent, Independence, Kans.
Spillers, J. O., district foreman, Caddo, Tex.
Stanley, L. G., district foreman, Pawhuska, Okla.
Talliott, M. M., chief carpenter, Tulsa, Okla.
Stines, J. J., division superintendent, Kansas City, Mo.
Strain, A. L., assistant chief accountant, Independence, Kans.
Swank, C. E., warehouse foreman, Caney, Kansas.
Thilenius, Fred, assistant master mechanic, Tulsa, Okla.
Tibbetts, R. J., civil engineer, Independence, Kans.
Traynor, Martin, superintendent's clerk, Bartlesville, Okla.
Tully, D. L., district foreman, Okmulgee, Okla.
Ulrich, A. C., chief tank strapper, El Dorado, Kans.
Wagner, N. E., chief boilermaker, Tulsa, Okla.
Weaver, G. E., civil engineer, Independence, Kans.
Weidner, C. R., chief engineer, Independence, Kans.
Weldon, E. R., general foreman telegraph department, Independence, Kans.
Wilhelm, F. M., secretary, Independence, Kans.
Wilhelm, J. C., chief tank strapper, Bartlesville, Okla.
Wolford, G. R., district foreman, Bartlesville, Okla.
Wright, C. H., foreman of gaugers, Ranger, Tex.

Guests from the Prairie Oil & Gas Co. were: W. S. Fitzpatrick, chairman of the board; N. K. Moody, president; Dana H. Kelsey, vice president and general manager; J. A. Hollihan secretary; E. T. Patterson, treasurer; Fred Cook, land department; J. A. Carroll, tax commissioner; H. A. Meyer, assistant to vice president; Michael Dougherty, superintendent tankage department.

OKLAHOMA'S LARGEST BANK



The interior of the Exchange National Bank, in Tulsa, known wherever oil is produced as The Oil Man's Bank. It has resources in excess of $35,000,000; is the largest bank in Oklahoma and one of the 100 largest banks in the United States. The lobby is 32x150 feet. There are 12 commercial tellers' windows and the savings department has recently been doubled in size. In the basement, to which the stairway in the picture leads, are 2,700 safe deposit boxes. The banking room is finished in Italian and Tennessee marble.

U. S. Contract Bids Are Significant of 1924 Gasoline Rate

CHICAGO, Dec. 23.—The marketing fraternity of this city is inclined to attach considerable significance to the bids of several companies to supply the motor requirements of the U. S. Motor Vehicle Service of this city covering requirements for 1924. The bids are generally interpreted as indicating an advancing gasoline market throughout the year. Especially significant is the bid of the Standard Oil Co. of Indiana. This company's bid for the first quarter was 2 cents below the tank wagon with a maximum of 15 cents. The same margin covered the remainder of the year with an 18 cent maximum for the second quarter and 20 cents maximum for the remainder of the year.

It is also significant as indicating the existing uncertainty regarding the future market that three of the five companies submitting bids made no offers after the first quarter. Following are the bids submitted in addition to that of the Standard Oil Co. of Indiana: Roxana Petroleum Corp., first quarter, 3 cents below tank wagon with maximum price of 12 cents. Sinclair Refining Co., first quarter, 2 cents below tank wagon, maximum 13 cents; second quarter, 2 cents below tank wagon, maximum 16 cents; third quarter, 2 cents below tank wagon, maximum 19 cents; fourth quarter, 2 cents below tank wagon, 19 cent maximum. Indian Refining Co., first quarter, 11 cents flat. The Texas Co., first quarter, 11 cents flat or 2 cents below the tank wagon with maximum of 13 cents.

CALIFORNIA REFINERY NOVEMBER STATISTICS

November reports to the United States Bureau of Mines show there were 41 refineries in operation during the month with a total daily indicated capacity of 520,240 barrels of crude oil. Based on the crude oil run to stills these plants were operating at 86 per cent of their capacity.

Output for November

Oils run to stills, bbls.:	
Domestic crude	13,323,272
Domestic partly refined	.....
Casinghead gasoline	99,712
Total oils run	13,422,984
Refined products:	
Gasoline, gals.	106,195,727
Kerosene, gals.	17,941,550
Gas and fuel oils	379,586,958
Lubricants, gals.	7,978,460
Wax, lbs.	27,566
Asphalt, tons	38,842
Other finished products, gals.	4,883,604
Losses, gals.	7,773,635
Net production of domestic partly refined oils, gals.	30,340,363

Stocks on Hand

Crude oil and partly refined products, bbls.:	
Domestic crude	6,197,630
Domestic partly refined	11,825,292
Total oils to be run	18,022,922
Finished products:	
Gasoline, gals.	174,452,619
Kerosene, gals.	23,978,044
Gas and fuel oils, gals.	599,502,964
Lubricants, gals.	12,417,259
Wax, lbs.	196,323
Asphalt, tons	75,674
All other finished products, gals.	246,341
Gross production of tops, gals.	38,233,079
Gross stocks of tops, gals.	384,483,436

PENNSYLVANIA CRUDE UP

For the second time within less than two weeks the Joseph Seep Purchasing Agency advanced all grades of Pennsylvania crude 25 cents on December 26. The first advance of 25 cents was made on December 14. The present price for Pennsylvania grade in New York Transit lines and the Bradford grade in the National Transit lines is $3.10. The remaining grades are $2.85.

DRILLING IN FLORIDA

Isaac Van Horn, of Haines City, Fla., in a communication to The Oil and Gas Journal, says: "We are drilling at Polk City, Fla."

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MEMBER AUDIT BUREAU OF CIRCULATION

WORLD DEMAND FOR OIL

Significant of the world's increasing use for oil are the export figures for crude and refined for the first 10 months of this year and for the three months' period August-October.

Our exports of crude and refined for the 10 months show a gain of 50 per cent over the similar period of 1920, and almost 30 per cent over 1922. In 1921 when other commodities showed a slackening in export of startling proportions petroleum dropped but 7 per cent.

For the three months—August to October—crude exports increased from 40 to 50 per cent over the same period of 1922. Refined exports, also attained a new record, with an increase of 27.8 per cent.

Allowance must, of course, be made for the fact that foreign buyers have been taking advantage of low prices in America to stock up and it is probable imports under forthcoming higher prices will fail to keep up this pace but there has evidently been a remarkable increase in foreign demand for oil outside of this and this will progressively continue.

Here in America we are so far ahead of the rest of the world in our use of motor transport that we sometimes forget that foreign countries are at about the stage we reached in 1910 or thereabouts. We are apt also to forget that, despite disturbed conditions abroad, the standard of living generally is higher than it was before the war and that with the return to anything like normal conditions of industry abroad there will be a constantly increasing demand for the conveniences and necessities supplied by motor transport in this country. This, of course, will mean a like demand for petroleum products and the world looks to America to meet it. World demand is growing faster than the increase in American stocks of crude.

What this will mean to the industry in this country can best be imagined when already the period of overproduction is past and thoughtful men are asking whether we shall be able to supply our own needs. Plans are under way for exploration in South America by some of the larger companies. So swift is the transition from over-abundance to scarcity which has been ever characteristic of this most fascinating of enterprises, finding the flowing gold that the world needs more every day.

A NATIONAL PETROLEUM INSTITUTE OF RESEARCH

A great national Institution for Petroleum Research is the need of the hour.

It has taken 75 years to develop the "rock oil," popularly supposed good only for medicinal and hair dressing purposes, into the indispensable spirit that moves and lubricates the machinery of the world of today.

When Samuel M. Kier took his "Seneca oil" to a Philadelphia chemist for analysis in 1849, 10 years before Drake drilled the first well, he blazed the way for the research that has made the mythical marvel of Aladdin's Lamp but a faint allegory of modern reality.

The discovery of lighting oil, the invention of the kerosene burner, were only the dawn of petroleum's utilization. The internal combustion engine transmuted the nuisance, gasoline, into the most prized product. Then, when insatiable demand threatened exhaustion, research found the cracking processes and immensely enlarged the recovery from oil.

Today, at the threshold of a new era in the history of this wonderful fluid, research is finding new uses and needs for petroleum products taxing again the enterprise and skill of the industry to meet the demand. The benefits to be derived by the refineries and marketing branches from the discovery and extension of new methods and uses would incalculably benefit the entire industry. Experience has proved that improvements invariably promote wider utilization.

Allied industries, dependent upon oil, have themselves turned to research in the hope of greater recovery of power through improvements in its use with the result that, at the meeting of the American Petroleum Institute in St. Louis, representatives of the research departments of the automotive, oil burner and shipping industries were able to offer valuable suggestions to the oil men themselves, a situation that has set many to thinking that if research can do so much for others it is time the petroleum industry tackled the job on its own behalf, no less than on behalf of its customers and the nation at large.

It is true that many large oil companies maintain research departments now but the need is greater than the resources of any company, however large. Petroleum is an irreplacable gift of Nature, as evanescent as Time which must be employed or is forever gone. Its limit is unknown. It is a necessity, as well as a duty, to prolong and profit to the fullest in our use of it, to guard against waste and to extract the utmost value from it. Think of the irretrievable loss of power through inefficient use before the discovery of the refining processes of the past dozen years. From what the automotive men say, with the internal combustion engine only 5 per cent efficient, think of what may be accomplished with corresponding strides in research in the coming decade.

Consider what research has done for other industries. It is possible today, an automotive engineer told the institute at St. Louis, "with simple modification of present types of automobile engines, to approach the economies of aviation engines with ordinary fuels. It is possible today with only slightly modified engines of current design with doped fuels to equal the economy averages of Diesel engines, the super-engines of pre-war days."

The same speaker added that "the petroleum industry has a great opportunity to market a larger part of its heavy ends for house heating and there is no doubt automotive engineers can aid the petroleum industry in the use of its heavy ends."

Here is an offer that cannot be disregarded, which points the way to just such a great national Institute for Petroleum Research as has been suggested. The Mellon Institute of Industrial Research of the University of Pittsburgh, founded by the present Secretary of the Treasury and his brother, is a conspicuous example of the achievements possible. Coke making has been revolutionized, even the smoke which once darkened the coke country being utilized by modern processes. The baking industry through discoveries at the Mellon Institute has been practically made over. The Laundry Owners' National Association, the Refractories Manufacturers' Association and other industries have taken advantage of this institute to found fellowships and have profited immensely through this research.

The petroleum industry, the second largest in the Nation, is great enough to have an institute of research all its own. It could be financed by a sale of bonds and at least $5,000,000 should be provided. The assets would be tangible, consisting of land and buildings, and money invested endowing the institution to insure all operating expenses, $1,000,000 for land, building and equipment, and $4,000,000 for endowment yielding $180,000 a year (at 4½ per cent) for operating expenses.

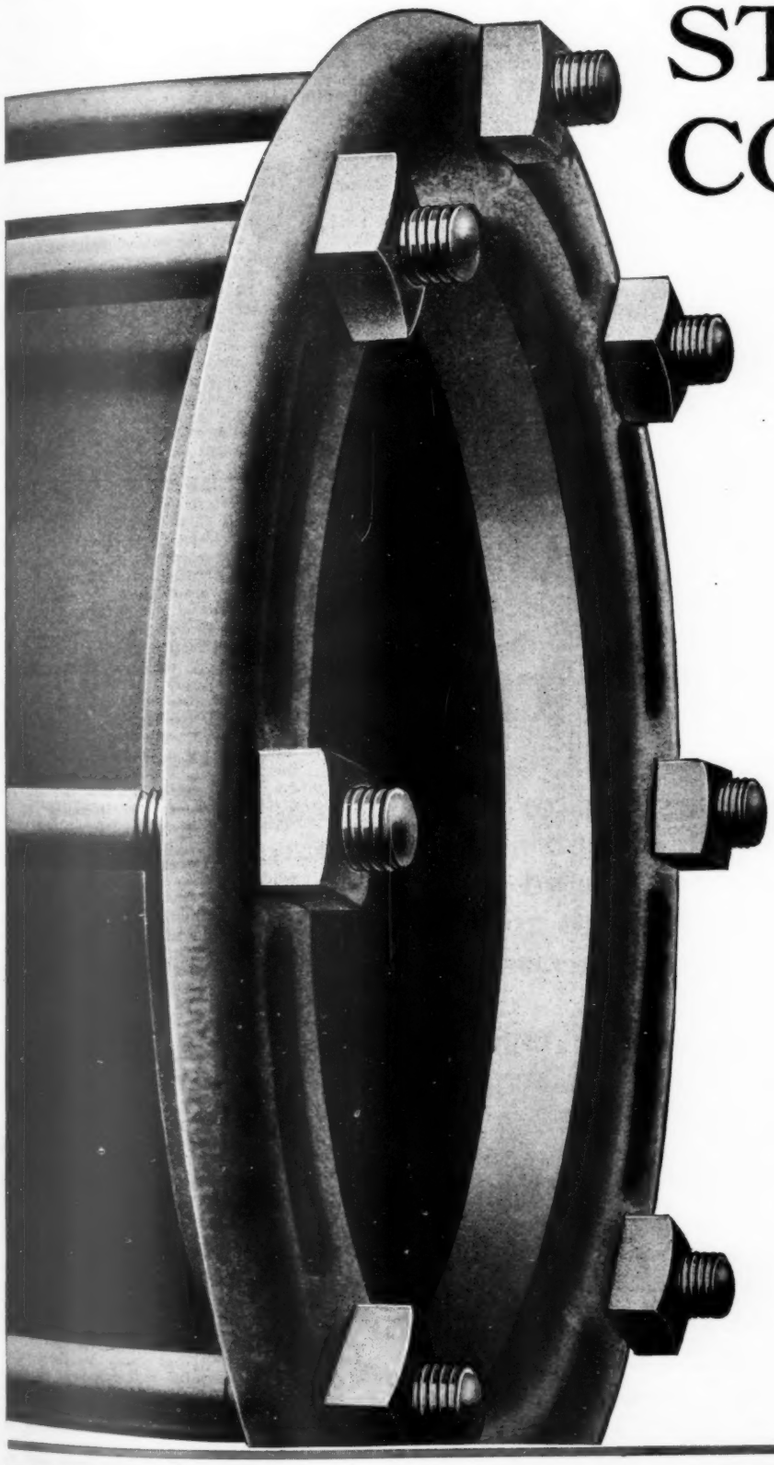
Patents could be taken out on processes or other discoveries, for which small royalties, sufficient only to maintain the institution, could be collected. In a very short time it would become self-sustaining.

Such an institute would attract the best scientific brains of the world. We would draw from scientific circles in Germany, Austria, France and other countries. Enormous duplication of effort and expense would be avoided since many of the larger companies maintain research departments. The institution could work with the Government's Bureau of Mines and Bureau of Standards in a thousand ways.

Serious study could be given to such important matters as the maximum recovery of oil, problems in refining, storage, transportation, development of a practical fuel oil burner for domestic purposes, etc., etc. The research departments of several large companies such as General Motors, Standard Oil Company of New Jersey, Atlantic Refining Company, Gulf, etc., prove practical appreciation of the value of research. There is scarcely an oil company or an operator of any consequence in the United States that would not be glad to purchase bonds in an enterprise which promises such rich returns to the whole industry and the world at large.

Properly sponsored the raising of the money would be only incidental. The whole scheme lies within the province of the American Petroleum Institute. But the need is urgent. The proposal should not be left unseized until, perhaps, an actual shortage in our supply of petroleum compels its adoption. Each gallon that could be more efficiently used is just that much power let slip through our fingers.

DRESSER



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DRESSER-COUPLINGS-DOMINATE

Oil Securities Steady During the Week

Practically All Gains Held Though Street Hoped for Price Advances in Fields. Stability Rather Than Boom Desired

By N. O. Fanning
Room 525 No. 30 Church St., New York

NEW YORK, Dec. 24.—Oil securities were steady during the past week, practically all the gains which have been registered during the month being well maintained.

The factors making for continued good feeling in Wall Street toward the petroleum issues included a further sharp decrease in the production of the Powell Field, a further decline in California production, and announcement on the part of Phillips Petroleum and Marland Oil interests that no financing in the immediate future was contemplated "as a result of the improved oil situation."

The Street was somewhat disappointed when price advances failed to occur in the Mid-Continent and California Fields, but it is still holding out hope that increases will come before the close of the year. Such action by Prairie Oil & Gas, Sinclair Crude Oil Purchasing and the Standard Oil Co. of California, in the belief of many, would serve to increase buying of oil stocks.

Among the oil stocks listed on the New York Stock Exchange Standard Oil of California, Pacific Oil and Houston Oil featured with continued activity and strength. Standard Oil of California stock of $25 par value advanced to 62⅞, which is only 1¼ points below the year's high record price. Pacific Oil came within a point of the year's high and Houston Oil stock advanced some five points during the week.

The Oil and Gas Journal's index of oil stock prices reached 52.28 on December 24. This marked the high point for December, and the highest point reached on the upward swing. It represents a gain of 10.62 points, or more than 25 per cent, since the rise started about November 1. Oil stocks have now experienced a continuous advance for nearly two months, without any serious setback for technical or other reasons.

Despite the recognized improvement in the oil situation, particularly as to production of crude oil, the status of this industry is not believed to have yet entirely recovered, by the more conservative observers. Stocks of oil are still large, and will only be diminished rapidly by a maintenance of consumption. It is by no means certain that domestic and export consumption in 1924 will exceed, or even equal, that of 1923, when low prices stimulated buying in many directions.

This does not mean that an advance in the price of oil stocks such as that which has been witnessed during the last two months is not justified. A rise was certainly in store after at least five months of decline and three more of unsteadiness. But it is not entirely certain that further immediate gains are justified. A temporary decline of small proportions might be expected now if only for technical reasons.

Big Speculators Change Front

One reason advanced for the suddenness and extent of the rise in the more speculative oil issues is that a large group of speculators which was instrumental in spreading bear propaganda several months ago, and which operated on the short side at that time, has suddenly switched to the opposite side and is "bulling" oil stocks for all it is worth, irrespective of stripe or color. If it decided to withdraw its support, the market, so far as these stocks are concerned, would possibly drop off considerably.

This emphasizes the necessity of caution in the choice of stocks on the part of those who buy from an investment viewpoint.

The writer, in voicing the opinion of the more conservative observers of the oil securities market, does not intend to convey the impression that such observers do not believe in the ability of the oil industry to recover entirely from the recent depression. They do believe in the full recovery of the oil business, but they are of the belief that a gradual improvement, continuing over the next few years, would be far better for the industry than a "boom" next year, to be followed by another wave of depression. In other words, they believe the industry is approaching a state of stability, which is the condition most to be desired by those who look to the welfare of the industry over a period of years.

Oil Producers Conservative

The word of two of the best-known and most authoritative oil men from the production angle seems enough to bear out the need for conservatism. W. S. Farish, head of the Humble Oil & Refining Co., is quoted as saying less than a month ago that an increase in oil prices now would serve to stimulate drilling with the possibility that another field such as Powell would be opened up in Texas by next spring. J. E. O'Neill, formerly head of the Prairie Oil & Gas Co., stated a few weeks ago that he did not believe the United States would have to depend solely on foreign oil because of the depletion of oil production here. This was a comment on the statement of a well-known geologist that "the United States would have to import its oil within five years."

Interviews with conservative and important oil interests in New York have indicated that too big a rise in prices in 1924 would have a harmful effect on the industry, both from an operating and political viewpoint. These interests all agree, however, that present prices are too low for the good of the industry.

Rise in Oil Stocks Orderly

That the advance in the price of oil securities has been of an orderly character is indicated by the course of The Oil and Gas Journal's averages. Beginning with the bottom figure of 41.66 on October 30, the average advanced to the following: November 5, 42.60; November 13, 43.84; November 20, 45.26, November 27, 47.74; December 4, 48.66; December 11, 49.27; December 18, 51.20; December 24, 52.28.

Although many reports have gone around recently regarding special developments affecting oil companies, to account for the rise in their securities, none has yet been confirmed, and so will not be repeated here.

Dividends Declared

The Pittsburgh Oil & Gas Co., a subsidiary of the Barnsdall Corp., resumed dividends on the capital stock by declaring a dividend of 25 cents a share, payable December 24 to stockholders of record December 21. This is the first dividend since 1921.

Directors of the Lone Star Gas Co., according to Pittsburgh advices, declared the Industrial Petroleum Co., Ltd., making in addition to the regular quarterly payment of 1½ per cent, both dividends being payable December 31 to stockholders of record December 24.

A dividend of 25 cents a share has been declared on the ordinary stock of the Industrial Petroleum Co., Ltd., making a total of 50 cents paid in 1923. The dividend is payable December 31 to stockholders of record December 22.

Sinclair Stock Not to Be Sold

Representatives of the Sinclair Consolidated Oil Corp. denied the report that part of the increased capital stock of the Sinclair Crude Oil Purchasing Co. was to be offered to the public. The latter company increased its capital recently from $40,000,000 to $65,000,000. The Standard Oil Co. of Indiana owns a half interest in the crude purchasing company while the Sinclair Consolidated owns the other half. Each organization subscribed for half of the increased capital, thus maintaining the 50-50 arrangement.

NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

No.	Stock	Par	§Dividend Rate	Closing Quotations Dec. 24	Dec. 18	Range High	1923 Low
1.	Associated Oil	25	6	29¼	28	29¼	24⅞
2.	Atlantic Refining, common	100	4	126	126	164	98⅝
3.	Barnsdall "A"	25	..	16	15⅛	35	9⅞
4.	Caddo Central Oil	..	..	2⅝	2½	9⅛	1½
5.	California Petroleum, common	25	7	25⅞	25	29⅛	17⅛
6.	Cosden & Co., common	..	..	35⅜	24⅞	62¼	22¾
7.	General American Tank	..	†3	42½	44½	71⅞	40
8.	General Asphalt	100	..	42⅛	35¾	54	23
9.	Houston Oil	100	..	71¼	67⅛	78	40¾
10.	Independent Oil & Gas	10	..	6½	6	11¼	3⅝
11.	Indiahoma Refining	25	..	13¼	*2	9	1¼
12.	Indian Refining	10	..	5⅛	4	8⅛	4
13.	Invincible Oil	50	..	15⅝	14	19¼	7⅛
14.	Maracaibo	..	..	28¼	25	28¼	16
15.	Marland	..	..	37⅞	35⅞	59⅝	18⅛
16.	Mexican Seaboard	..	..	15¼	15⅜	19⅜	5⅜
17.	Middle States Oil	10	..	6⅜	7⅛	12¼	4¾
18.	National Supply	50	6	*66	65½	68	54
19.	Pacific Oil	..	†2	49⅞	46⅜	49⅞	31½
20.	Pan-American, common	50	16	63½	62½	93½	53
21.	Panhandle Prod. & Ref.	..	..	*2⅛	*2	6¼	1¼
22.	Phillips Petroleum	..	†2	33⅛	32½	69⅝	19¾
23.	Pierce Oil, common	25	..	2¼	2½	6	1½
24.	Producers & Refiners	50	..	32⅝	29⅜	58¼	17⅛
25.	Pure Oil Co., common	25	6	21⅝	20⅜	32	16¼
26.	Royal Dutch, N. Y., sh	13.40	2.62	47⅝	48⅜	55½	40½
27.	Shell Transport	10	x92½	*31⅝	*33	41¼	29½
28.	Shell Union, common	..	†1	17⅛	15⅜	19¼	12⅜
29.	Simms Pet.	10	..	11⅜	10⅞	16⅜	6½
30.	Sinclair Consolidated, common	..	†2	26	25½	39⅝	16
31.	Skelly Oil	25	..	24½	23¼	35	12⅛
32.	Standard of California	25	8	63⅛	60	64⅛	47⅛
33.	Standard of N. J.	25	4	37⅛	36⅝	44¼	30⅝
34.	Standard of New Jersey, pfd	100	7	*116½	117	118¼	114⅜
35.	Superior Oil	..	..	2¼	2½	6⅜	2
36.	The Texas Co.	25	12	42⅞	42½	52⅞	34⅝
37.	Texas & Pacific Coal & Oil	10	..	11⅜	11	24⅜	5½
38.	Tide Water Oil	100	4	*116	116½	144	94
39.	Transcontinental	..	..	4	3½	14½	1¼
40.	Union Tank, preferred	100	7	*106½	*106½	114	106
41.	White Eagle Oil & Ref.	..	2½	25⅞	24⅜	30⅝	20⅛
	Standard Oil Stocks						
42.	Anglo-American Oil	5	15	15¼	15⅜	19⅜	13½
43.	Borne Scrymser	100	12	*140	*145	153	110
44.	Buckeye Pipe Line	50	14	70	70	94	69
45.	Chesebrough Mfng., com.	100	14	234	*225	340	205
46.	Continental Oil	25	8	*42	43¼	50	32½
47.	Crescent Pipe Line	25	..	*13½	*14	25	15
48.	Cumberland Pipe Line	100	10	*105	*104	117	80
49.	Eureka Pipe Line	100	8	99	*95	117¼	87
50.	Galena-Signal, common	100	4	68	67½	78	55
51.	Humble Oil & Ref.	25	4.8	37	36⅝	41	28¼
52.	Illinois Pipe Line	100	16	*137	137	171	115
53.	Imperial Oil, Ltd.	25	16	114	107½	123	92
54.	Indiana Pipe Line	50	16	85	85	103	81
55.	Intl. Pet. Co.	..	x50	19¾	16½	24⅜	13¼
56.	Magnolia Pet.	100	4.5	146	145	166	123
57.	National Transit	12.50	16	*21⅝	*21	29	19½
58.	New York Transit	100	10	75½	76	138	70
59.	Northern Pipe Line	100	25	*93	*93	111	96
60.	Ohio Oil Co.	25	4	68¼	68⅝	85⅝	48⅝
61.	Penn-Mex Fuel	25	..	37½	42	45	10½
62.	Prairie Oil & Gas	100	8	226	225½	272	152
63.	Prairie Pipe Line	100	8	103	103	117	93
64.	Solar Refining Co.	100	15	*165	170	212	161
65.	Southern Pipe Line	100	16	90⅛	*91	116	87
66.	South Penn Oil	100	..	145½	143	196	100
67.	South West Pa. Line	100	8	*77	*77	89	66
68.	Standard of Indiana	25	10	64⅝	63½	69⅞	49¼
69.	Standard of Kansas	25	8	41¼	41½	56¼	36½
70.	Standard of Kentucky	25	16	109	107	109½	76
71.	Standard of Nebraska	100	20	*220	230	280	186
72.	Standard Oil of N. Y.	25	5.6	45⅜	43	49⅝	35½
73.	Standard of Ohio, common	100	10	*281	283	317	270
74.	Swan & Finch	100	..	38	35	38	21½
75.	Vacuum Oil	25	10	55⅛	53⅞	55½	40
76.	Washington Oil	10	..	*21	*23	28	20¼
	Miscellaneous Stocks						
77.	Cities Service, banker's shares	..	‡21	14⅜	15	18½	12⅜
78.	Gulf Oil Corp. of Pa.	25	6	61¼	59⅝	68¼	45⅝

*Bid, no sales. †In dollars. 16 per cent in cash and 15 per cent stock dividend declared; now being paid in scrip. §The figures carried in this column are kept up-to-date as far as possible but are not guaranteed. xCents per share.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange weekly was as follows:

Dec. 24	52.28	Nov. 13	43.84	Oct. 2	42.53
Dec. 18	51.20	Nov. 5	42.60	Sept. 25	42.48
Dec. 11	49.27	Oct. 30	41.66	Sept. 18	41.43
Dec. 4	48.66	Oct. 23	42.42	Sept. 11	44.78
Nov. 27	47.74	Oct. 16	42.80	Sept. 4	44.66
Nov. 20	45.26	Oct. 9	43.29	Aug. 28	44.18

HUERTA TO REPUDIATE OIL LOAN TO OBREGON

WASHINGTON, D. C., Dec. 22.—Adolfo de la Huerta, provisional head of the revolutionary movement in Mexico, has cabled his agents in this country a protest against the making of any loan to the Obregon Government based on advance payment of oil taxes. Alleging that the recognized government in Mexico is "endeavoring to obtain funds by means of a loan arranged with oil operators," the communication states that the revolution, if successful, will repudiate all such advances of funds.

The protest was made public by Francisco Gonzales Gante, representative in Washington of the revolutionary leaders. It is understood to have been sent to Martin Luis Guzman, representative of the de la Huerta movement in New York, and steps have been taken to bring it to the attention of oil banking interests.

NOTHING FOR GRIT TO CUT

Fig. 1100—Size 6x4x6″

TRANSIT Outside Center Packed Plunger PUMP

Where the fluid to be handled contains more or less grit, we recommend an outside packed plunger pump. The pumping is performed by the displacement of the plungers—no rings nor pistons for the grit to cut—and the packing is easily renewed when necessary.

Extra long plunger stuffing boxes permit a very light pressure on the plungers. This is easy on both the packing and the plungers.

Bulletin 104-A for sizes and capacities.

NATIONAL TRANSIT
Pump & Machine Company
OIL CITY, PA.

District Offices: New York Philadelphia Pittsburgh Cleveland Kansas City Houston Denver

OIL PRODUCTION

"Who's Who" In Oklahoma Oil Production

Twelve Companies Had 186,000,000 Barrels or 44 per cent of Output During Past Three Years. Industry Requires Big Business.

By Charles E. Bowles
Author of "The Petroleum Industry"

In the 36 months from October 1, 1920, to September 30, 1923, Oklahoma produced a little over 417,000,000 bbls. of crude oil. Of this amount 12 of the large companies produced over 186,000,000 bbls., or 44 per cent—24 smaller companies produced about 88,000,000, of 21 per cent, while the remaining companies and individuals (averaging about 1,360 for the three-year period) produced the remaining 143,000,000, or 35 per cent.

Set up in figures, the record looks like this:

12 companies,	186,000,000,	44 per cent
24 companies,	88,000,000,	21 per cent
1,360 companies,	143,000,000,	35 per cent
1,396 companies,	417,000,000,	100 per cent

In compiling the statistical table accompanying this article the quarterly "gross production" reports published in The Oil and Gas Journal have been used. These reports are taken from the quarterly gross production returns made to the State Auditor by the oil producers.

Approximately Accurate

Everyone familiar with the oil business knows that these figures are not absolutely accurate, "down to the sixth place of decimals." We all know that there are always some companies that are delinquent in making their returns to the State Auditor, that where several companies operate a property together, nobody but the companies themselves know how the credit for the oil produced is finally "split up;" that no one but the companies themselves know the ramifications of the ownership of subsidiaries, and the grouping of the production of the parent company and its subsidiaries into one "producing unit," yet, notwithstanding these "obvious inaccuracies," total amounts of oil under consideration are so large that the omission of the entire production of one, or even several, companies for the entire quarter would have no material effect on the final percentages.

In round numbers, there has been an average of about 1,400 oil producing companies and individuals in Oklahoma during the past three years. In this article they have been divided into three groups:

1. Companies whose production has averaged about a "million barrels a quarter." There are 12 of these companies.

2. Companies whose production has averaged about a "million barrels a year." There are 24 of these companies.

3. All other companies. These include companies and individual operators whose production may have run along smoothly during the three years, or that may have "skyrocketed" in a few months from almost nothing to several hundred thousand barrels, and back again. During the last three years there has been an average of about 1,360 of these operators.

Million-Barrel Companies

As shown in table, the "million barrels a quarter" class includes the Prairie, Gypsy, Carter, Humble, Magnolia, Sinclair, Phillips Petroleum, Skelly, Marland, Comar, Roxana and The Texas Companies. These 12 companies may be divided into five groups of interests, but the phrase, "groups of interests," is not intended to even suggest that there are interlocking directorates, secret understandings, gentlemen's agreements, violations of the Sherman Act or anything of the kind existing between any or all of these 12 companies.

As a great industrial nation we are slowly and surely getting away from being stampeded every time we listen to the denunciation of big corporations by political charlatans and industrial agitators, even "in high places." As our industries are becoming more highly organized (and humanized) the "per cent of return" earned by capital invested in stable businesses is slowly growing less, and capital has found it "has to operate in bigger blocks." Corporations are growing bigger today, not because their officers and directors want big corporations or hope to earn larger dividends thereby, but because in the keen struggle for business the average small company can't carry the "overhead expense" (the organization) that is necessary to succeed. The answer to business today is not found in terms of material business, but in organization, and it is right here in the word "organization" that we find the answer to the amazing story told in the accompanying table.

Antagonism Is Harmful

The country as a whole is not permanently benefited when "warfare" breaks out either between or within industries, and big corporations have not only found out that both they and the public suffer when the "big fellows" get into a fight, but that the very highest type of service that a great corporation can render to the public, and incidentally to itself, is to work out the problems of its relation to other great corporations constructively, and not destructively. Because of the peculiar mental warp of some of our theoretical political economists many of our people have been misled into believing that the public would reap the greatest benefit if every big corporation in the country were constantly at the throat of every other big corporation. But our big corporations know better, and it is in this sense of the highest type of constructive relations between big corporations that the phrase "group interests" is used in this article.

In the past three years the Gypsy Oil Co. has produced about 25,000,000 bbls. of oil, or 6 per cent of the State's total production during that period.

The Prairie, Carter, Humble, Magnolia and Sinclair Companies together have produced about 83,000,000 bbls., or 20 per cent of the State's total.

Phillips Petroleum and Skelly produced together almost 33,000,000 bbls., or about 8 per cent of the total.

Marland, Comar and Roxana produced, together, about 33,000,000 bbls., or about 8 per cent of the total.

The Texas Co. produced less than 3 per cent of the total, or about 11,500,000 bbls.

Together, these 12 companies, from "groups of interests," produced 186,000,000 bbls., or 44 per cent of Oklahoma oil, during the past three years.

Taking the aggregate production by quarters of these 12 companies we find that for the fourth quarter of 1920 they produced a little less than 10,000,000 bbls. This is 35 per cent of the State's

(Continued on Page 104)

Companies—	1920 Fourth Quarter	1921 First Quarter	1921 Second Quarter	1921 Third Quarter	1921 Fourth Quarter	1922 First Quarter	1922 Second Quarter	1922 Third Quarter	1922 Fourth Quarter	1923 First Quarter	1923 Second Quarter	1923 Third Quarter	Total for Three Years
1 Gypsy Oil Co.	1,031,902	1,008,658	980,880	1,079,326	565,513	1,750,784	1,871,493	1,569,245	3,239,828	3,531,622	5,001,966	3,973,893	25,605,130
2 Prairie Oil & Gas Co.	1,482,343	1,327,181	1,380,795	1,374,888	1,520,764	1,816,861	2,327,612	2,307,285	2,024,384	1,652,558	1,641,663	1,536,491	20,392,525
3 Carter Oil Co.	1,335,768	1,290,034	1,837,996	2,312,134	2,315,744	2,208,576	1,969,213	2,163,995	2,085,274	1,766,849	2,142,016	2,900,918	24,328,317
4 Humble Oil & Ref. Co.	350,326	374,821	388,733	496,876	429,216	420,761	604,576	516,193	454,644	369,979	.....	293,453	4,699,573
5 Magnolia Petroleum Co.	1,345,236	1,281,288	1,394,452	1,380,017	1,554,608	1,407,259	1,475,238	1,486,712	1,417,961	1,401,802	1,408,540	1,518,811	17,071,154
Magnolia Subsidiary	16,367	264,652	61,356	67,738	120,753	127,424	177,632	309,528	237,460	139,207	117,217	116,188	1,755,522
6 Sinclair Oil & Gas Co.	1,034,194	866,246	984,551	1,056,941	999,579	1,015,899	1,590,981	2,101,369	1,801,019	1,339,888	1,397,023	1,252,105	15,439,995
7 Phillips Petroleum Co.	335,800	223,135	734,613	444,875	497,994	729,623	1,128,733	2,057,869	1,423,347	1,310,406	2,207,873	3,089,496	14,184,764
8 Skelly Oil Co.	411,835	522,921	660,101	797,253	731,705	839,428	1,504,446	1,083,407	2,152,284	2,313,471	4,693,338	3,056,069	18,764,258
9 Marland Refining Co.	502,015	220,054	475,555	409,973	585,376	574,502	568,182	508,971	439,141	344,885	362,379	306,950	5,298,013
Marland Subsidiary	32,805	.....	116,275	193,841	172,803	259,696	398,878	443,581	326,229	144,663	64,441	68,863	2,222,075
10 Comar Oil Co.	.....	.....	.....	.....	172,226	204,154	396,402	547,623	870,645	2,798,219	4,960,702	4,149,797	14,099,768
11 Roxana Petroleum Co.	775,940	812,332	816,238	852,338	927,337	1,168,252	1,051,946	1,048,807	926,020	774,312	719,538	1,358,946	11,232,006
12 The Texas Co.	1,328,014	1,101,323	1,158,416	837,220	902,624	931,145	809,586	861,800	972,246	966,809	842,582	862,479	11,574,240
Total barrels	**9,982,545**	**9,292,645**	**10,989,961**	**11,303,420**	**11,496,242**	**13,454,364**	**15,874,024**	**17,006,485**	**18,370,492**	**18,854,670**	**25,559,278**	**24,484,489**	**186,608,833**
Per cent of total production	**35**	**35**	**37**	**37**	**39**	**41**	**42**	**43**	**47**	**48**	**56**	**61**	**6**
1 Amerada Petroleum Co.	305,774	514,431	471,675	244,102	220,949	204,575	352,292	306,149	412,134	569,951	877,816	681,031	5,160,879
2 Barnsdall Oil Co.	23,644	46,146	50,956	386,529	351,791	689,838	306,929	383,728	330,792	357,137	319,076	247,031	3,493,597
3 Blackwell Oil & Gas Co.	37,810	36,260	34,822	28,788	23,585	16,054	.....	22,507	166,743	419,774	501,321	.....	1,287,664
4 Cosden Oil & Gas Co.	244,452	238,985	257,324	426,459	321,771	290,774	367,249	710,896	698,380	647,509	513,384	409,021	5,125,944
Cosden Subsidiary	226,230	181,663	229,599	196,049	186,060	179,937	299,975	326,096	431,488	223,403	186,722	118,310	2,785,552
5 Empire Gas and Fuel Co.	166,474	123,382	136,370	454,278	139,311	218,908	230,125	239,825	249,785	227,748	212,678	313,777	2,714,463
Empire Subsidiary	191,211	187,909	514,035	444,268	212,476	228,251	204,585	333,582	294,497	277,974	308,946	306,062	3,503,796
6 Healdton Oil & Gas Co.	40,767	38,712	35,177	33,433	32,043	26,176	19,842	19,542	62,037	245,670	393,140	297,607	1,244,146
7 Independent Oil & Gas Co.	.....	.....	17,492	147,982	69,676	782,577	395,225	378,314	446,362	288,077	.....	152,459	2,678,164
8 McCaskey & Wentz	196,569	180,612	170,281	161,616	151,152	141,127	150,700	158,549	246,855	543,489	967,207	558,260	3,626,457
9 Oil State Petroleum Co.	26,218	8,677	22,611	15,588	8,282	24,423	19,601	30,633	70,996	253,773	407,952	372,122	1,266,874
10 Oklahoma Prod. & Ref. Corp.	344,526	213,147	330,285	374,540	294,372	364,938	337,316	557,477	479,182	420,562	386,450	314,764	4,417,553
11 Pure Oil Co.	403,733	391,627	407,384	406,130	366,265	407,716	341,431	351,320	336,475	575,857	437,306	475,605	4,960,643
12 Pennok Oil Co.	88,748	41,449	40,231	37,595	34,566	31,430	33,116	31,268	207,572	358,286	747,414	434,907	2,666,582
13 Producers & Refiners Corp.	260,200	236,058	298,836	425,298	522,754	410,483	249,795	262,647	207,533	176,362	185,433	418,036	3,653,435
14 Shaffer Oil & Ref. Co.	147,558	.....	220,947	256,239	287,305	229,939	237,760	235,828	211,732	184,893	179,564	171,584	2,363,349
15 Slick, T. B.	40,348	25,224	21,207	17,826	14,490	14,611	17,581	100,730	129,090	614,127	360,005	668,983	2,024,222
16 Southwestern Pet. Co.	152,044	67,184	48,329	45,895	93,827	103,631	152,770	303,479	444,719	245,502	166,390	158,753	1,982,123
17 Tidal Oil Co.	378,130	373,241	497,722	509,006	377,577	413,277	389,993	446,655	466,727	464,388	357,394	340,980	5,015,090
18 Tidal-Osage Oil Co.	224,150	401,282	243,342	297,635	282,245	238,790	326,659	310,827	331,810	292,031	269,779	218,836	3,377,916
19 Transcontinental Oil Co.	5,264	3,320	3,787	4,414	2,814	233,159	341,774	361,223	209,628	210,605	196,920	.....	1,572,644
20 Twin State Oil Co.	236,075	248,249	293,984	299,177	276,435	228,277	326,134	387,350	281,241	286,731	420,558	544,565	3,828,776
21 Waite Phillips	370,966	280,813	205,199	222,643	222,518	816,925	1,084,705	899,708	782,814	663,272	810,439	532,390	6,892,392
22 Westheimer & Daube	284,422	276,639	354,355	307,619	308,461	269,914	251,467	265,248	216,304	166,888	168,331	178,924	2,947,972
23 Wilcox Oil & Gas Co.	237,225	142,591	85,117	257,160	187,767	348,819	537,907	977,541	661,768	689,965	788,908	461,433	5,376,201
24 Wolverine Oil Co.	331,700	400,212	422,041	498,150	432,188	402,853	372,606	370,531	341,625	319,997	407,566	568,630	4,868,099
Total barrels	**4,966,238**	**4,657,811**	**5,413,108**	**6,498,419**	**5,420,680**	**7,317,342**	**7,347,537**	**8,771,453**	**8,718,289**	**9,723,971**	**10,540,699**	**8,944,070**	**88,223,817**
Per cent of total production	**17**	**17**	**18**	**21**	**18**	**22**	**19**	**23**	**22**	**25**	**23**	**22**	**21**
Grand total, barrels	**14,948,783**	**13,950,456**	**16,403,069**	**17,801,839**	**16,916,922**	**20,771,706**	**23,221,561**	**25,777,938**	**27,088,781**	**28,578,641**	**36,099,977**	**33,428,559**	**274,980,650**
Total for State	**28,541,480**	**26,586,489**	**29,456,469**	**30,195,783**	**29,440,835**	**32,440,557**	**37,829,349**	**39,455,812**	**39,021,127**	**39,186,794**	**45,323,672**	**40,303,570**	**417,781,857**
Per cent produced by above companies	**52**	**52**	**55**	**58**	**57**	**63**	**61**	**65**	**69**	**73**	**79**	**83**	**66**
Total companies producing	***930**	**†915**	**1,427**	**1,450**	**1,453**	**1,440**	**1,440**	**1,390**	**1,500**	**1,425**	**1,290**	**1,214**	**‡1,366**
Total barrels by all other producers	**13,592,698**	**12,636,033**	**13,053,400**	**12,393,944**	**12,523,911**	**11,668,851**	**14,607,788**	**13,677,874**	**11,932,346**	**10,608,153**	**9,223,695**	**6,875,011**	**142,798,804**
Per cent produced by all other producers	**48**	**48**	**45**	**42**	**43**	**37**	**39**	**35**	**31**	**27**	**21**	**17**	**34**

*These 930 producers represent 24,706,715 barrels. Approximately 4,000,000 barrels more oil were produced by about 450 more operators.
†These 915 producers represent 22,579,175 barrels. Approximately 4,000,000 barrels more oil were produced by about 450 more operators.
‡Average.

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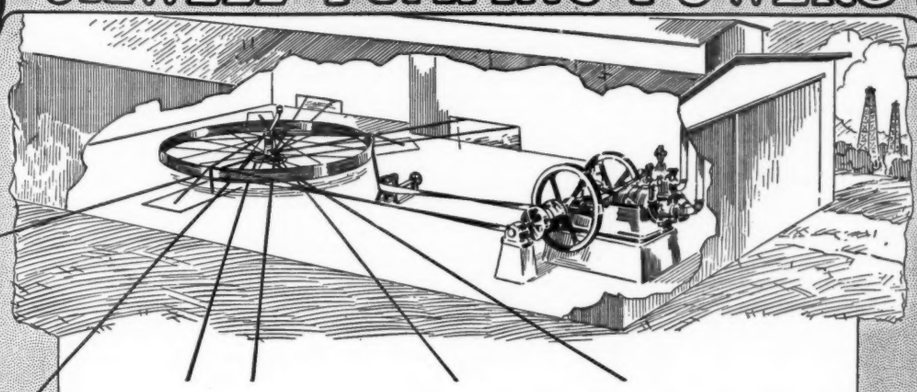

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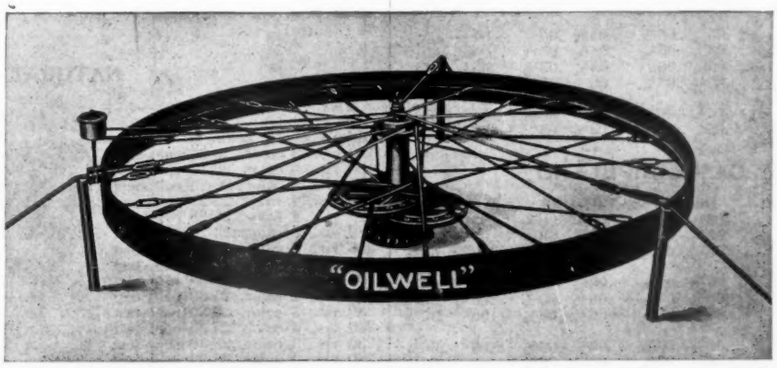

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GASOLINE AND NAPHTHA

CHICAGO DIST. (Based on Group 3)—	Dec. 25		Dec. 18		Dec. 11	
50-52 450 end point (Naphtha)	.06¾	.07	.06¼	.06½	.06	.06¼
56-58 450 end point	.06¾	.07	.06½	.06¾	.06	.06⅛
58-60 437 end point (New Navy)	.07½	.07¾	.07	.07¼	.06½	.06⅞
60-62 400 end point	.08¼	.08¾	.08	.08¼	.07¾	.08
64-66 375 end point	.09¼	.09½	.09	.09¼	.08¾	.09
68-70 360 end point	.10	.10⅜	.10	.10¼	.09¾	.10
OKLAHOMA (Group 3)—						
50-52 450 end point (Naphtha)	.07	.07¼	.06½	.06¾	.06	.06½
56-58 450 end point	.07¼	.07½	.06¾	.07	.06½	.06¾
58-60 437 end point (New Navy)	.07½	.07¾	.07¼	.07½	.06¾	.07
60-62 400 end point	.08½	.08¾	.08¼	.08½	.08	.08¼
64-66 375 end point	.09	.09½	.09	.09¼	.08¾	.09¼
68-70 350-365 end point	.10	.10¼	.10	.10¼	.09¾	.10
KANSAS—						
58-60 437 end point (New Navy)	.07¾	.08	.07¼	.07½	.07	.07¼
NORTH TEXAS—						
48-52 450 end point (Naphtha)	.06¾	.07	.06¼	.06½	.06	.06¼
50-52 440 end point (Naphtha)	.06¾	.07¼	.06¼	.06¾	.06	.06½
56-58 450 end point	.07	.07¼	.06¾	.07	.06½	.06¾
58-60 437 end point (New Navy)	.07½	.07¾	.07	.07¼	.06¾	.07
60-62 400 end point	.08¼	.08¾	.08¼	.08½	.07¾	.08¼
64-66 390 end point	.09	.09¼	.08¾	.09	.08¾	.09
64-66 375 end point	.09¼	.09½	.09	.09¼	.09	.09¼
NORTH LOUISIANA—						
56-58 450 end point	.06¼	.06¾	.06	.06½	.06	.06½
58-60 437 end point (New Navy)	.07	.07½	.06¾	.07	.06¾	.07
30-62 400 end point	.08	.08¼	.07¾	.08	.07¾	.08
64-66 400 end point	.08½	.08¾	.08¼	.08½	.08¼	.08½
64-66 390 end point	.08¾	.09	.08¾	.09	.08¾	.09
ARKANSAS—						
58-60 450 end point	.07½	.07¾	.07	.07¼	.07	.07¼
58-60 437 end point (New Navy)	.07¾	.08	.07¼	.07½	.07¼	.07½
64-66 375 end point	.09½	.09¾	.09	.09¼	.08½	.09
ROCKY MOUNTAIN STATES—						
*58-60 437 end point (New Navy)	.10½		.09½		.09½	
PENNSYLVANIA—						
52 Naphtha	.08¾		.08¾		.08¾	
54 Naphtha	.09		.09		.09	
56 Gasoline	.09¼		.09¼		.09¼	
58 Gasoline	.09½		.09½		.09½	
60 Gasoline	.10		.10		.10	
62 Gasoline	.11		.11		.11	
64 Gasoline	.13		.13		.13	
66 Gasoline	.15¼		.15¼		.15¼	
68-70 Gasoline	.16		.16		.16	

*Colorado points.

NATURAL GASOLINE

CHICAGO DIST. (Based on Group 3)—	Dec. 25		Dec. 18		Dec. 11	
Grade A, 72-78, under 375 e.p., rec. 90%	.06	.06½	.05¼	.05½	.05½	.05¾
Grade B, 76-82, 375 end point, rec. 85%	.05¼	.05¾	.05	.05¼	.05¼	.05½
Grade C, 80-88, 350 end point, rec. 78%	.04¾		.04¾	.05	.05	.05¼
OKLAHOMA (Group 3)—						
Grade A, 72-78, under 375 e.p., rec. 90%	.06	.06¼	.05½	.05¾	.05¼	.05½
Grade B, 76-82, 375 end point, rec. 85%	.05½	.06	.05	.05½	.05¼	.05½
Grade C, 80-88, 350 end point, rec. 78%	.05	.05¼	.04½	.04¾	.04¾	.05
Grade D, 88-92, 350 end point	.05	.05¼	.04½	.04¾	.04¾	.05
NORTH TEXAS—						
80-84 compression	.05	.05¼	.04¾	.05	.04¾	.05
84-90 compression	.05	.05¼	.04¾	.05	.04¾	.05
72-76 absorption	.05¾	.06	.05¼	.05½	.05¼	.05½
76-82 absorption	.05½	.05¾	.05	.05¼	.05	.05¼
NORTH LOUISIANA—						
Grade B	.05¾	.06	.05	.05¼	.05	.05¼
Grade C	.05	.05¼	.04¾	.05	.04¾	.05

MOTOR NATURAL GASOLINE BLEND

CHICAGO DIST. (Based on Group 3)—	Dec. 25		Dec. 18		Dec. 11	
58-62 437 end point	.06½	.06¾	.06⅛	.06⅜	.05⅞	.06⅛
60-62 450 end point	.06½	.06¾	.06¼	.06½	.05⅞	.06⅛
64-66 450 end point	.06½	.06¾	.06⅛	.06⅜	.05⅞	.06⅛
OKLAHOMA (Group 3)—						
60-62 450 end point	.06½	.06¾	.06¼	.06½	.06	.06¼
64-66 437 end point	.06¾	.07	.06½	.06¾	.06¼	.06½
68-70 430-435 end point	.06¾	.07	.06½	.06¾	.06¼	.06½
NORTH TEXAS—						
58-62 440 end point	.06½	.06¾	.06⅜	.06⅝	.06	.06¼
58-60 450 end point	.06½	.06¾	.06⅜	.06⅝	.06	.06¼
PENNSYLVANIA—						
*60-62	.09½		.09½		.09½	
*64-66	.09½		.09½		.09½	
*66-68	.09½		.09½		.09½	
*68-70	.09½		.09½		.09½	

*At Sistersville, W. Va.

BURNING OIL

CHICAGO DIST. (Based on Group 3)—	Dec. 25		Dec. 18		Dec. 11	
42-43 water white Kerosene	.04⅜	.04⅝	.04½	.04⅝	.04⅜	.04⅝
42-44 water white Kerosene	.04½	.04¾	.04½	.04¾	.04½	.04⅞
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.04½	.04¾	.04⅜	.04⅝	.04½	.04¾
42-43 water white Kerosene	.04⅝	.04¾	.04½	.04¾	.04⅝	.04¾
41-43 prime white Kerosene	.04¼	.04⅜	.04¼	.04⅜	.04¼	.04⅜
KANSAS—						
41-43 water white Kerosene	.04¾	.05	.04¾	.05	.04¾	.05
NORTH TEXAS—						
41-43 water white Kerosene	.04¼	.04¾	.04¼	.04¾	.04½	.04¾
41-43 prime white Kerosene	.04¼	.04½	.04¼	.04½	.04¼	.04½
40-42 prime white Distillate	.04	.04¼	.04	.04¼	.04	.04⅛
42-44 water white Kerosene	.04¾	.04⅞	.04¾	.05	.04½	.05
NORTH LOUISIANA—						
41-43 prime white Kerosene	.04¾	.05	.04¾	.05	.04¾	.05
42-43 water white Kerosene	.05	.05¼	.05	.05¼	.05	.05¼
ARKANSAS—						
41-43 water white Kerosene	.04¾	.05	.04¾	.05	.04¾	.05
42-44 water white Kerosene	.05	.05¼	.05	.05¼	.05	.05¼
ROCKY MOUNTAIN STATES—						
*40-42 prime white Kerosene	.07½		.07½		.07½	
PENNSYLVANIA—						
43 Kerosene prime white	.06¾		.06¾		.06¾	
45 Kerosene water white	.07		.07		.07	
46 Kerosene water white	.07¾		.07¾		.07¾	
47 Kerosene water white	.08¼		.08		.08	
36 Miners' Neutral	.07¼		.07		.07	

*Colorado points.

FUEL OILS

CHICAGO DIST. (Based on Group 3)—	Dec. 25		Dec. 18		Dec. 11	
24-26 Fuel Oil (sellers' cars, Group 3)	.77½	.82½	.75	.80	.72½	.77½
22-24 (El Dorado)	.70	.75	.65	.70	.62½	.67½
18-20 (Smackover)	.60	.65	.57½	.60	.55	.60
32-36 Gas Oil	.02½	.02¾	.02½	.02¾	.02½	.02¾
38-40 Straw distillate	.03⅛	.03⅝	.03	.03¼	.03	.03¼
KANSAS—						
24-26 Fuel Oil	.95	1.00	.90	.95	.90	.95
32-36 Gas Oil	.02¾	.03	.02¾	.03	.02½	.02¾
38-40 Distillate	.03½	.03¾	.03½	.03¾	.03½	.03¾
OKLAHOMA (Group 3)—						
24-26 Fuel Oil (buyers' cars)	.80	.85	.75	.80	.70	.75
24-26 Fuel Oil (sellers' cars)	.85	.90	.80	.85	.75	.80
28-30 Fuel Oil (sellers' cars)	.90	.95	.85	.90	.85	.90
32-36 Gas Oil	.02½	.02⅝	.02⅜	.02½	.02⅜	.02⅝
38-40 Straw Distillate	.03	.03¼	.03	.03¼	.03	.03¼
NORTH TEXAS—						
24-26 Fuel Oil	.75	.80	.75	.80	.70	.75
26-30 Fuel Oil	.80	.85	.80	.85	.75	.80
32-36 Gas Oil	.02⅜	.02½	.02¼	.02⅜	.02¼	.02⅜
36-38 Gas Oil	.02⅝	.02¾	.02⅝	.02¾	.02⅝	.02¾
38-40 Straw Distillate	.03	.03¼	.03	.03¼	.03	.03¼
NORTH LOUISIANA—						
20-22 Fuel Oil	.70	.75	.70	.75	.70	.75
32-36 Gas Oil	.02½	.02¾	.02½	.02¾	.02½	.02¾
38-40 light Straw Distillate	.03	.03¼	.03		.03	
ARKANSAS—						
38-40 Distillate	.03	.03¼	.03		.03	
32-36 Gas Oil	.02½	.02¾	.02¾		.02¾	
22-26 Refinery Fuel Oil	.75	.80	.70	.75	.65	.70
GULF COAST (South Texas)—						
Gas Oil	.03½	.04	.03½	.04	.02¾	.03¼
Fuel Oil	1.15	1.20	1.15	1.20	1.10	1.15
PENNSYLVANIA—						
30-34 Fuel Oil	.04¾		.04¾		.04¾	
36-40 Fuel Oil	.05		.05		.05	
34 Neutral	.07½		.07½		.08	

NATURAL OILS

OKLAHOMA (Group 3)—	Dec. 25		Dec. 18		Dec. 11	
Pale Neutrals:						
70-80 vis., 2½ color, 20-25 cold test	.04	.04¼	.04	.04¼	.04	.04¼
100 vis., 2 color, 20-25 cold test	.05	.05½	.05	.05½	.05	.05½
100 vis., 3 color, 20-25 cold test	.04¾	.05	.04¾	.05	.04¾	.05
150 vis., 3 color, 20-25 cold test	.09½	.10	.09½	.10	.09½	.10
150 vis., 4 color, 20-25 cold test	.09	.09½	.09	.09½	.09	.09½
180 vis., 4 color, 23-28 cold test	.11¼	.11¾	.11¼	.11¾	.11¼	.11¾
180 vis., 3 color, 23-28 cold test	.12	.12½	.12	.12½	.12	.12½
200 vis., 3 color, 23-28 cold test	.13	.13½	.13	.13½	.13	.13½
200 vis., 4 color, 23-28 cold test	.12¼	.12¾	.12¼	.12¾	.12¼	.12¾
200 vis., 3 color, 25-30 cold test	.14	.14½	.14	.14½	.14	.14½
220 vis., 4 color, 25-30 cold test	.13¼	.13¾	.13¼	.13¾	.13¼	.13¾
240 vis., 3 color, 25-30 cold test	.15	.15½	.15	.15½	.15	.15½
240 vis., 4 color, 25-30 cold test	.14¼	.14¾	.14¼	.14¾	.14½	.14¾
280 vis., 3 color, 25-30 cold test	.17½	.18	.17½	.18	.17½	.18
280 vis., 4 color, 25-30 cold test	.16½	.17	.16½	.17	.16½	.17
300 vis., 3 color, 25-30 cold test	.18	.18½	.18	.18½	.18	.18½
Red Neutrals:						
180 vis., 5 color, 23-28 cold test	.10½	.11	.10½	.11	.10½	.11
180 vis., 6 color, 23-28 cold test	.09¾	.10¼	.09¾	.10¼	.09¾	.10¼
200 vis., 5 color, 23-28 cold test	.11½	.12	.11½	.12	.11½	.12
200 vis., 6 color, 23-28 cold test	.10¾	.11¼	.10¾	.11¼	.10¾	.11¼
220 vis., 5 color, 25-30 cold test	.12½	.13	.12½	.13	.12½	.13
220 vis., 6 color, 25-30 cold test	.11¾	.12¼	.11¾	.12¼	.11¾	.12½
240 vis., 5 color, 25-30 cold test	.13½	.14	.13½	.14	.13½	.14
240 vis., 6 color, 25-30 cold test	.12¾	.13¼	.12¾	.13¼	.12¾	.13¾
280 vis., 5 color, 25-30 cold test	.15½	.16	.15½	.16	.15½	.16
280 vis., 6 color, 25-30 cold test	.14½	.15	.14½	.15	.14½	.15
150-160 vis., 1 color, 40-50 cold test	.04½	.05	.04½	.05	.04½	.05
190-200 dark green, 40-50 cold test	.03½	.04	.03½	.04	.03½	.04
600 steam refined	.16		.16		.16	
590-600 Bright Stock	.23	.26	.23	.26	.23	.26
600-610 Bright Stock	.28	.31	.28	.31	.28	.31
Waxes:						
124-126 White Crude Scale Wax	.03	.03¼	.02¾	.03	.02¾	.03

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

PENNSYLVANIA—	Dec. 25	Dec. 18	Dec.11
150, 3 color	.22½	.22½	.21¼
180, 3 color	.25½	.25½	.24
200, 3 color	.27¼	.27	.26
220, 3 color	.30	.30	.29
600, steam refined	.13¼	.13	.11½
635, steam refined	.15½	.14½	.14
650, steam refined	.16½	.16	.15
600, Pennsylvania flash	.18½	.18	.17
630, Pennsylvania flash	.23½	.23	.23
*550 E filtered	.16	.15½	.15
*600, E. filtered	.18	.17½	.17
600, E filtered	.16½	.15¾	.15¼
600 D. filtered	.23½	.23	.21
550, E filtered	.15¼	.14½	.14¼
550, D filtered	.18½	.18	.16
Pennsylvania Bright Stock	.31¾	.31¾	.31½
†122-124 White Crude Scale Wax	.03¾	.03¾	.03⅜
*122-124 White Crude Scale Wax	.03½	.03½	.03⅜
300 Mineral Seal	.07½	.07½	.07½

*At Warren, Penn. †At New York City.

GULF COAST (South Texas)—	Dec. 25		Dec. 18		Dec.11	
Lubricating Stocks:						
Zero Black	.06½	.07	.06½	.07	.06	.07
No. 2 color, 100 vis. pale oil	.09	.10	.09	.10	.09	.10
No. 2½ color, 150 vis., pale oil	.10½	.11	.10½	.11½	.10½	.11½
No. 3 color, 200 vis., pale oil	.11½	.12½	.11½	.12½	.11	.12½
No. 3½ color, 300 vis., pale oil	.14	.15	.14	.15	.14	.15
No. 3½ color, 500 vis., pale oil	.15½	.16½	.15½	.16½	.16	.17
No. 3½ color, 750 vis., pale oil	.21	.23	.21	.23	.21	.23
No. 1½ color, 150 vis., filtered	.21	.22	.21	.22	.21	.22
No. 2 color, vis., pale filtered	.23	.25	.23	.25	.23	.25
No. 2 color, 300 vis., pale, filtered	.28	.29	.28	.29		
No. 3½ color, 500 vis., pale, filtered	.32	.33	.32	.33	.32	.33
No. 3½ color, 750 vis., filtered	.38	.40	.38	.40	.38	.40
No. 5 to 6 color, 200 vis., red oil	.10	.11	.10	.11	.10	.11
No. 5 to 6 color, 200 vis., red oil	.11½	.12½	.11.½	.12½		
No. 5 to 6 color, 500 vis., red oil	.13½	.14½	.13½	.14½	.13½	.14½
No. 5 to 6 color, 750 vis., red oil	.20	.21	.20	.21	.20	.21

NEW YORK DOMESTIC MARKET

Motor Gasoline	Dec. 25	Dec. 18	Dec. 11
Greater New York, in steel barrels	.15½	.15½	.15½
New York State (outside, Greater New York and New England, tank wagon	.15½	.15½	.15½
New Jersey, tank wagon	.15½	.15½	.15½
V. M. P. Naphtha, in steel barrels	.14½	.14½	.14½
Kerosene:			
Greater New York, tank wagon	.15	.15	.15
New York State (outside Greater New York and New England, tank wagon	.15	.15	.15
Gasoline in bulk, delivered at N. Y.	.09½	.09½	.09½
New Jersey tank wagon	.14	.14	.14
Lubricating Oil (Industrial) at refinery:			
Bayonne, N. J.:			
Cylinder, extra light filtered, in barrels	.37½	.36½	.36½
Cylinder, light filtered, in barrels	.32½	.31½	.31½
Cylinder, Bright Stock	.44	.44	.44
Cylinder, steam refined (600)	.22½	.21½	.21½
Black, in bulk	.09½	.09½	.09½
Bloomless, white, 30-31 gravity, 170 vis.	.43	.43	.43
Bloomless, 885 specific gravity	.10½	.10½	.10½
Red Paraffin:			
170 viscosity	.18½	.18½	.18½
212 viscosity	.20	.20	.20
265 viscosity	.22	.22	.22
295 viscosity	.25	.25	.25
Paraffin, 903 specific gravity	.22½	.22½	.22½
*Fuel Oil:			
Bunker Oil, 14 plus, delivered in barges, bbl.	1.35	1.35	
Diesel Oil, at refinery, gallon	.03½	.03½	.03½
Furnace Oil, tank wagon, gallon	.10	.10	.10
Gas Oil, delivered in New York	.04	.04	.04
Wax, fully refined:			
120-122 a.m.p.	.04	.03⅜	.03⅜
125-127 a.m.p.	.04¼	.03¾	.04¼
130-132 a.m.p.	.04¾	.04¼	.04¼
135-137 a.m.p.	.05⅜	.05¼	.05¼

*Litherage, 6.5c a barrel extra.

NEW YORK EXPORT PRICES

	Dec. 25	Dec. 18	Dec. 11
Motor Gasoline, in cases, gallon	24.4	24.4	24.4
Motor Gasoline, U. S. Navy, spec, gallon	10.5	10.5	10.5
Naphtha, 60°, F., 59-61 spec, grav.	12.0	12.0	12.0
Naphtha, 60° F., 63-66, spec. grav.	14.0	14.0	14.0
Naphtha, 60° F., 66-68 spec. grav.	15.5	15.5	15.5
Kerosene:			
Standard white, in bulk, gallon	.07	.07	.07
Standard white, in barrels, gallon	.14	.14	.14
Standard white, in cases, gallon	17.15	17.15	17.15
Water white, in cases, gallon	.08	.08	.08
Water white, in barrels, gallon	.15	.15	.15
Water white, in cases, gallon	18.5	18.5	.185

CRUDE OIL PRICES

December 13.—The Texas Co., in the fields of North and Central Texas, where it buys crude on a gravity basis, changed its prices on all schedules above 33° gravity to conform to those of the Humble Oil & Refining Co. Below 33° gravity was unchanged.

December 14.—Joseph Seep Purchasing Agency advanced all grades of Pennsylvania crude 25 cents.

December 15.—Magnolia Petroleum Co., in the fields of North and Central Texas, where it buys crude on a gravity basis, adjusted its prices to conform to those of the Humble Oil & Refining Co. and The Texas Co. for all schedules

December 18.—Gulf Pipe Line Co. met The Texas Co. prices in North and Central Texas where crude is purchased on a gravity basis.

December 21.—Ohio Oil Co. advanced Lima, Indiana, Illinois, Princeton, Plymouth and Waterloo crudes 10 cents and Wooster 15 cents. Imperial Oil, Ltd. advanced Petrolia and Oil Springs, Canada crudes 10 cents. Corning crude advanced 15 cents.

December 22.—Cabell and Somerset crudes advanced 15 cents. above 33° gravity. Below 33° gravities were unchanged.

December 26.—Seep Purchasing Agency advanced all grades of Pennsylvania crudes 25 cents.

Oklahoma and Kansas

Below 33°	$ .75
30° to 39.9°	1.00
40° and above	1.25
Magnolia Petroleum Co.:	
Below 28°	.40
28° to 30.9°	.60
31° to 32.9°	.75

Arkansas and North Louisiana

Caddo, 38° and above	$1.10
35° to 37.9°	1.00
32° to 34.9°	.90
Below 32°	.75
Homer, 35° and above	1.10
33° to 34.9°	1.00
31° to 32.9°	.90
Below 31°	.75
Haynesville, 33° and above	1.00
Below 33°	.90
El Dorado, 33° and above	1.10
Below 33°	1.00
Bull Bayou, 38° and above	1.05
35° to 37.9°	.90
32° to 34.9°	.75
De Soto	1.10
Crichton	.90
Bellevue	.75
Smackover, 26° and above	.75
25° to 25.9°	.60
24° to 24.9°	.50
Below 24°	.40
*Stephens, Ark., 28° and above	.80
26° to 27.9°	.75

*Posted by Atlantic Oil Prod. Co.

Wyoming and Montana

Rock Creek (Wyo)	$ .60
Salt Creek	.60
Big Muddy	.45
Mule Creek	.45
Grass Creek	.95
Elk Basin	.95
Lance Creek	.90
Osage	.90
Cat Creek (Mont.)	.90
Sunburst (Mont.)	.70
Greybull and Torchlight	.95
Hamilton Dome	.52½

Lander and Lost Soldier based on contracts covering entire production of fields.

North Texas and Central Texas

Corsicana Light	$1.00
Corsicana Heavy	.40
Mexia	1.00
Currie	1.00
Powell	1.00
Thrall	1.00

Moran, Burkburnett, Electra, Archer County, Stephens County, Strawn, Ranger, Desdemona, Pioneer and Young County.

Prairie Oil & Gas Co., Sinclair Crude Oil Purchasing Co.:

Below 33°	$ .75
33° to 39.9°	1.00
40° and above	1.25

Humble Oil & Refining Co., The Texas Co., Magnolia Petroleum Co., and Gulf Pipe Line Co.:

33° to 35.9°	1.00
33° to 38.8°	1.15
39° and above	1.30
Magnolia Petroleum Co.:	
Below 28°	.40
28° to 30.9°	.60
31° to 32.9°	.75
Humble Oil & Refining Co.:	
Below 30°	.80
30° to 32.9°	.90
The Texas Co. and Gulf Pipe Line Co.:	
Below 33°	.75

Gulf Coast

Gulf Pipe Line Co., Goose Creek, Hull, Sour Lake, Batson, Saratoga, Spindletop, Orange, Vinton, Edgerly, Jennings	$1.00
Grade "B," Pierce Junction, Blue Ridge	.90
The Sun Pipe Line Co., Grade "A," Humble, Hull, Goose Creek, Orange, Spindletop, Saratoga, Batson, Dayton, Sour Lake	1.00
Humble Pipe Line Co., Goose Creek, Hull, West Columbia, Orange	1.00
Grade "B," Pierce Junction	.90
Texas Pipe Line Co., Humble, West Columbia, Orange, Sour Lake, Saratoga, Batson, Vinton, Jennings, Markham	1.00
Sinclair Pipe Line Co., West Columbia, Damon Mound	1.00

California

14° to 19.9°	$ .60
20° to 20.9°	61
21° to 21.9°	.62
22° to 22.9°	.63
23° to 23.9°	.64
24° to 24.9°	.65
25° to 25.9°	.66
26° to 26.9°	.67
27° to 27.9°	.68
28° to 28.9°	.69
29° to 29.9°	.70
30° to 30.9°	.71
31° to 31.9°	.72
32° to 32.9°	.73
33° to 33.9°	.74
34° to 34.9°	.75
35° gravity and above	.76

Eastern States

Penna Grade Oil in New York Tansit Lines	3.10
Bradford District Oil in National Tansit Lines	3.10
Penna Grade Oil in National Transit Lines	2.85
Penna Grade Oil in Southwest Pa. Pipe Lines	2.85
Penna Grade Oil in Eureka Pipe Pipe Lines	2.85
Penna Grade Oil in Buckeye Pipe Pipe Lines	2.85
Corning Grade Oil in Buckeye Pipe Line Lines	1.40
Cabell Grade Oil in Eureka Pipe Line Lines	1.35
*Somerset Medium Oil in Cumberland Pipe Line Lines	1.30
*Somerset Light Oil in Cumberland Pipe Line Lines	1.45
Ragland Grade Oil in Cumberland Pipe Line Lines	.75
Lima	1.53
Wooster	1.40
Illinois	1.32
Indiana	1.33
Princeton	1.32
Plymouth	.70
Waterloo	.80
†Petrolia, Canada	1.93
†Oil Springs, Canada	2.00

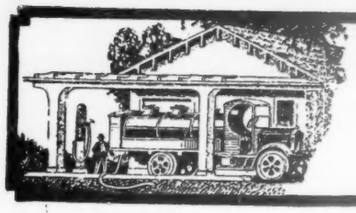
*Somerset oil commands 6 cents over the above posted price.

†Plus Government bounty of 52½c.

Mexican Crude

*Tuxpam (f. o. b. Mexican ports)	$ .80
†Panuco (f. o. b. Mexican ports)	.65
Tuxpam (New York)	1.31
Panuco (New York)	1.06

*Plus 26.69c tax. †Plus 15.58c tax. Prices based on contracts.



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States, as furnished by the larger marketing concerns, Dec. 25

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

Main Service Station Price

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
Chicago district	12.0	..	14.0	10.0

Tank wagon prices on April 10, 1922, g. up 1½c; May 8, g. up 1c; June 27, both up 1c; July 19, g. down 2c; k. down 1c; Oct. 10, g. down 2c; Oct. 31, g. down 1c; Feb. 6, 1923, g. up 1c; Feb. 20, g. up 1c; Aug. 14, g. down 6.6c; Oct. 4, k. down 1½c; Nov. 10, g. down 1.4c.

Decatur, Ill.	12.2	..	14.2	10.5
East St. Louis	11.1	..	13.35	9.6
Joliet	12.4	..	14.4	10.7
Peoria	12.3	..	14.2	10.5
Quincy	12.2	..	14.2	10.3
Davenport, Ia.	12.5	..	14.5	10.9
Des Moines	12.5	..	14.5	10.9
Keokuk	12.5	..	14.5	10.9
Sioux City	12.0	..	14.0	10.5
Duluth, Minn.	13.2	..	15.2	11 6
Minneapolis	12.9	..	14.9	11.6
La Crosse, Wis.	13.2	..	15.2	11.4
Milwaukee	12.0	..	14.0	10.2
Madison	12.3	..	14.3	10.5
Detroit, Mich.	12.8	..	14.8	11.2
Grand Rapids	12.7	..	14.7	11.1
Saginaw	12.9	..	14.9	11.3
Evansville, Ind.	14.0	2.0	16.0	10.5
Fort Wayne	14.4	2.0	16.4	10.9
Indianapolis	14.2	2.0	16.2	10.7
South Bend	14.4	2.0	16.4	10.9
Fargo, N. D.	14.6	1.0	16.6	13.6
Huron, S. D.	16.0	2.0	18.0	12.1
Sioux Falls	15.5	2.0	17.5	11.6
*Kansas City	12.9	1.0	14.9	9.3
Springfield	11.8	..	13.8	10.2
*St. Louis	11.6	.5	13.9	10.0
*St. Joseph	12.3	.5	14.3	10.2
Wichita, Kans.	11.8	..	13.8	9.8

*City tax

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

Atlantic Refining Co.

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
*Pittsburgh, Pa.	14.0	..	19.0	14.0
*Philadelphia	14.0	..	19.0	14.0
*Scranton	14.0	..	19.0	14.0
*Allentown	14.0	..	19.0	14.0
*Altoona	14.0	..	19.0	14.0
Dover, Del.	15.0	1.0	18.0	14.0
Wilmington	15.0	1.0	18.0	14.0
Providence, R. I	15.5	..	18.0	14.0
Springfield, Mass	14.5	..	17.0	14 0
Worcester	14.5	..	17.0	14.0
Boston	14.5	..	17.0	14.0
Hartford, Conn.	16.5	1.0	19.0	14.0
New Haven	16.5	1.0	19.0	14.0

*Pennsylvania tax of 2 cents is collected by the dealer and paid by him direct to the State.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
Atlanta, Ga.	16.0	3.0	18.0	14.0
Augusta	18.0	3.0	20.0	15.0
Macon	18.0	3.0	20.0	15.5
Savannah	16.0	3.0	18.0	14.0
Birmingham, Ala.	16.0	2.0	18.0	15.5
Mobile	16.0	2.0	17.0	13.5
Montgomery	16.0	2.0	18.0	16.0
Clarksdale, Miss	14.0	1.0	16.0	14.0
Jackson	14.0	1.0	16.0	12.0
Natchez	13.5	1.0	15.5	13.5
Vicksburg	13.5	1.0	15.5	13.5
Jacksonville, Fla	16.0	3.0	18.0	14.0
Miami	18 0	3.0	20.0	15.5
Pensacola	16.0	3.0	18.0	14.5
Tampa	16.0	3.0	18.0	14.0
Covington, Ky.	16.0	1.0	18.0	13.0
Lexington	15.0	1.0	17.0	14.0
Louisville	14.0	1.0	16.0	13.0

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
Denver, Colo.	14.0	2.0	16.0	12.5
Glenwood Spgs.	19.0	2.0	....	16.5
Pueblo	15.0	2.0	17.0	12.5
Basin, Wyo.	16 0	1.0	....	13.0
Casper	14.0	1.0	16.0	11.0
Cheyenne	15.5	1.0	17.5	13.0
Cody	17.0	1.0	....	14.0
Lander	16.0	1.0	....	13.0
Billings, Mont.	18.5	2 0	20.5	14.5
Butte	20.0	2.0	22.0	15.0
Great Falls	20.0	2.0	22.0	16.0
Helena	20.0	2.0	22.0	16.0
Miles City	19.5	2.0	21.5	15.5
Boise, Idaho	20.0	2.0	22.0	18.0
Salt Lake, Utah	18.0	2.5	20.0	15.5
Ogden	18.0	2.5	20.0	15.5
Albuquerque, N. M.	18.0	1.0	20.0	15.5

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
Newark, N. J.	15.5	..	....	14.0
Atlantic City	15.5	..	....	14.0
Annapolis, Md.	16.0	1.0	19.0	14.0
Baltimore	16.0	1.0	19.0	13.0
Cumberland	16.0	1.0	19.0	15.0
Washington, D. C.	15.0	..	18.0	13.5
Norfolk, Va.	18.0	3.0	20.0	13.0
Petersburg	18.0	3.0	20.0	14.5
Danville	18.0	3.0	20.0	15.5
Richmond	18.0	3.0	20.0	13.5
Roanoke	18.0	3.0	20.0	15.0
Keyser, W. Va.	17.0	2.0	....	15.0
Charleston	17 0	2.0	....	13.5
Parkersburg	17.0	2.0	....	12.0
Wheeling	17.0	2.0	....	13.5
Charlotte, N. C.	18.0	3.0	....	14.5
Hickory	18.0	3.0	....	15.0
Mt. Airy	18.0	3.0	....	14.5
Salisbury	18.0	3.0	....	15.0
Charleston, S. C.	18.0	3.0	....	12.5
Columbia, S. C.	18.0	3.0	20.0	14.5

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
Dallas, Tex.	12.0	1.0	15.0	9.0
Fort Worth	12 0	1.0	15.0	10.0
Houston	14.0	1.0	18.0	11.0
San Antonio	12.0	1.0	15.0	9.0
El Paso	12.0	1.0	13.0	12 0
Muskogee, Okla.	9.0	1.0	12.0	11.0
Oklahoma City.	12.0	1.0	15.0	11.0
Tulsa	9.0	1.0	12.0	10.0
Ft. mith, Ark.	13.0	3.0	16.0	12.0
Little Rock	15.0	3.0	18.0	13.0
Texarkana	15.0	3.0	18.0	12.0

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
Albany, N. Y.	15.5	..	18.5	14.0
*New York	15 5	..	18.0	15.0
Buffalo	14.0	..	17.0	15.0
Rochester	15.0	..	17.0	13.0
Syracuse	15.0	..	17.0	15.0
Boston, Mass.	14.5	..	17.0	15.0
Providence, R.I.	15.5	..	19.0	15.0
Augusta, Me.	15.5	1.0	19.0	15.0
Manchester	15.5	1.0	19.0	15.0
Burlington, Vt.	15.5	1.0	19.0	15.0

*Price in steel barrels.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
Omaha	12.25	..	14.25	10.5
Crawford	13.0	..	.....	11.25
McCook	13.75	..	15.75	12.0
Norfolk	12.75	..	14.75	11.00
North Platte	13.75	..	15.75	11.75
Scotts Bluff	13.25	..	15.25	11.25

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
New Orleans, La	11.5	1.0	14.5	9.0
Alexandria	12.5	1.0	15.5	13.0
Baton Rouge	11.0	1.0	14.0	11.5
Lake Charles	12.5	1.0	15.5	13.0
Shreveport	12.5	1.0	15.5	13.0
Memphis, Tenn.	14.0	2.0	17.0	14.0
Chattanooga	14.5	2.0	17.5	14.5
Knoxville	15.5	2.0	18 5	15.0
Nashville	13.5	2.0	15.5	13.5
Bristol	16.0	2.0	19.0	15.5
Little Rock, Ark	15.0	3.0	18.0	13.0
West Helena	15.0	3.0	18 0	13.0

PACIFIC COAST DISTRICT

Standard Oil Co. (California)

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
San Francisco	13.0	2.0	16.0	15.5
Los Angeles	12.0	2.0	15 0	15.5
Fresno	13.5	2.0	16.5	17.5
Reno, Nev.	16.5	2.0	19.5	19.0
Portland, Ore.	15.0	3.0	18.0	16.5
Seattle, Wash.	13.0	1.0	16 0	16.5
Tacoma	13.0	1.0	16.0	16.5
Spokane	17.0	1.0	20.0	20.5
Phoenix, Ariz.	19.0	3.0	22.0	21.5
Honolulu, H.	12.5	..	15.5	17.5
Juneau, Alaska	13.5	..	16.5	18.0

OHIO

Standard Oil Co. (Ohio)

	Gasoline Tank wagon	Gasoline Incldg tax	Gasoline Service of station	Kero. Tank wagon
All Ohio points	15 0	..	18.0	13.0

TANK WAGON CHANGES

Effective December 14, the Atlantic Refining Co. reduced its kerosene tank wagon prices 1 cent in the New England States.

Effective December 20, Magnolia Petroleum Co. reduced the gasoline tank wagon price 2 cents and the service station price 4 cents at El Paso, Tex.

Effective December 22, Continental Oil Co. advanced the gasoline tank wagon and service station price 1 cent at Denver, Colo.

Effective December 24, Magnolia Petroleum Co. advanced the kerosene tank wagon price 1 cent at Oklahoma City and Muskogee, Okla. Standard Oil Co. of Indiana advanced the tank wagon price 1 cent at Kansas City.

HOUSTON REFINERIES IN BEST CONDITION

HOUSTON, Tex., Dec. 24.—Movement of zero cold test lubricants last week reflected the inclement weather and the approach of the holiday season. While prices showed no change, demand was weak.

Record rainfall over the coastal country slowed down plant output in some instances. Loading tank cars became difficult. In a few instances, shipments were held back because of inability to load on schedule. This condition is giving refiners an opportunity to complete records on the business of the year. While no figures have been made public, several concerns having headquarters in Houston seem sure to close the year in the best condition of their business history.

Stocks are down. In fact several concerns are buying in the open market to complete orders. Sales for the past three months have been up to plant capacity and prices have allowed profits. With all this, it looks like refiners of the coastal area will go into the new year prepared to take advantage of whatever turn the market may take.

Some are expecting slightly lower prices immediately after January 1. Opinions to this effect are based on the fact that the winter season will be in full sway, with motoring at its low point. This will bring demand to a low ebb, with the possibility of slightly lower prices.

Just as lower prices are expected for January, higher prices are being calculated for the early spring. This calculation is on the opinion that crude oil prices will advance by that time, forcing refined prices up with it.

During the past week the market has been without outstanding features.

NATIONAL TRANSIT CO. FILLS TWO VACANCIES

OIL CITY, Pa., Dec. 22.—At a meeting of the board of directors of the National Transit Co., C. T. McClintock was elected a director and F. G. Zimmerman was elected secretary to fill the vacancies caused by the death of Secretary S. R. Ball. At the same time B. L. Wood was appointed assistant secretary.

The new officers appointed have been in the service of the company for some time; the new director, Mr. McClintock, serving in the auditor's department; and Mr. Zimmerman and Mr. Wood served in the treasurer's department. The new secretary will take active office while the new director and the newly appointed assistant secretary will continue in their present positions.

MID-CONTINENT REFINERY OPERATIONS DECEMBER 13

Crude runs and gasoline, kerosene, gas ciation. Stocks of gasoline were increased and fuel oil output increased in the Mid-Continent area for the week ending December 15, according to the weekly report of the Western Petroleum Refiners Association. Stocks of gasoline were increased about 2 per cent. Stocks of gas and fuel oil were also increased, while stocks of kerosene at refineries other than those of Texas were decreased. The increase in gasoline stocks was entirely due to Texas as refineries of the other states all showed a decrease in their holdings of that commodity. Kansas refineries also reported a material decrease in their stocks of gas and fuel oils.

CONSOLIDATED STATEMENT COVERING ALL REPORTING REFINERIES FOR WEEK ENDING 7 A. M., DECEMBER 15, 1923

	Kansas	Oklahoma	Texas	La.-Ark	Total	Wk End. Dec. 8, 1923	Wk. End. Nov. 7
Number of refineries reporting	23	57	39	11	130	128	115
Daily capacity of stills bbls.	81,900	259,200	129,650	26,100	496,850	490,350	437,650
Materials for stills, bbls.:							
Crude oil, item A	256,576	798,362	648,204	82,611	1,785,753	1,604,854	1,454,770
Other oils (see note) item B	18,880	85,963	198,324	16,208	319,375	383,182	806,941
Total	275,456	884,325	846,528	98,819	2,105,128	1,988,036	2,261,711
Output of finished products, gals.:							
Gasoline, item C	3,913,701	12,401,722	6,554,612	936,978	23,807,013	22,234,683	20,530,695
Kerosene, item D	1,201,652	4,045,931	1,952,726	331,521	7,531,830	6,775,444	6,950,831
Gas and fuel oil, item E	5,212,116	14,280,276	17,857,410	1,753,343	39,103,145	37,911,166	30,784,187
Stocks on hand at close of week:							
Materials for stills, bbls.:							
Crude oil, item J	602,390	4,400,396	1,027,901	945,608	6,975,395	6,914,167	5,429,253
Crude oils (see note) item K	19,139	881,734	387,046	512,508	1,800,427	1,762,903	1,576,191
Finished products, gals.:							
Gasoline, Item L	5,691,173	60,668,748	33,275,039	1,456,741	101,091,701	99,127,267	103,242,230
Kerosene, Item M	2,341,484	9,539,420	*.....	184,028	†12,062,932	12,757,027	13,877,653
Gas and fuel oil, item N	7,639,078	46,608,186	44,287,744	2,594,305	101,129,313	97,772,694	116,228,175

Note—Other oils includes all oils other than crude which are either purchased or withdrawn from stocks and run to stills during the week. The total of items A and B is, therefore, the net quantity of materials consumed by the reporting refineris in producing the quantities of products shown as the result of the operation of the refineries during the week. Item K includes all stocks of oils, other than crude, held for further refining.

*Not shown due to investigation of reports. †Texas not included.

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Safeguarding the Domestic Oil Burners

Device Must Be Correct in Principle and Properly Constructed, Sold Correctly and Maintained in Good Shape

By Curtis R. Welborn
Associate Engineer Gases and Oils Department, Underwriters' Laboratories

Oil has played and will play for a considerable period of time, in all probability, a prominent part in our national and international relations; but not until recently have we given much concern regarding the part it is beginning to play in our domestic affairs.

The prevailing coal shortages and accompanying high prices have forced the great buying American public to seek available and cheaper fuel. As a result of the demand put forth on the part of the public, the combustion, the mechanical and the electrical engineers, as well as the "jack of all trades" of the country, have made and attempted to make oil-burning devices for domestic use.

Some of these devices are well manufactured, of suitable material, and safeguarded as far as the advancement of the art dictates, while a number are nothing more or less than piles of hardware, introducing a real menace to life, and are an ever present agent to increase our national ash heap.

Factors Enhancing Success

Those devices that in principle possess real merit and are equipped with up-to-date safeguards may still be hazardous. Unless an oil burner is properly constructed, installed and maintained, it may not be considered as having been safeguarded so far as practicable. This article, from a fire prevention viewpoint, may be termed a brief survey on "How to do it and how not to do it," with respect to the construction, installation and maintenance of domestic oil-burning equipments. Briefly, it is thought that the factors that will enhance the success of any domestic oil burner are:

First: That the device be correct in principle and properly constructed.

Second: That the device be sold correctly.

Third: That the device be installed and maintained correctly.

Experience over an extended period of time involving research and the testing of domestic oil burners leads to the grouping of such burners into two distinct classes. In the first class are those constructed by the cut and dried method, in which little or no consideration has been given to varying conditions under which the device will be called upon to perform in actual service, to the character and combustion of the fuel utilized in the device, to the known physical properties of the metals employed in the assembly, to the safeguarding of the equipment against the tampering of the laymen, or to internal phenomena that lead to or introduce additional hazards.

Those in Second Class

In the second class are those designed prior to the construction of a test sample, in which careful attention has been paid to all features previously mentioned.

When subjected to actual service conditions, covering an extended period of time, the burner of the first type has been observed, in most cases, to fail in operation, and in the failure the construction, in some cases, introduced hazards jeopardizing property to a great extent. It is deemed advisable, from a fire protection viewpoint, that domestic oil burners be designed in proper sizes or with some form of adjustment to meet the varying field conditions with respect to the many different types of the existing heating units and their inherent characteristics, and that combustion of the fuel specified by the manufacturer of the device be proven suitable, using oils of both the asphaltum and paraffin bases.

What Not to Do

To bring out clearly this compilation, the reader's attention is invited to Figure A, which might be given the title, "How Not to Install an Oil Burner." In the illustration the letters refer to the following:

A—Storage tank above ground.

B—Pipe line between storage and auxiliary tanks and leading from the bottom of the large container.

C—Use of flanged unions with rubber gaskets.

D—Glass gauge located in basement, and employed in the line to indicate the oil level of the storage tank.

E—Shutoff valve without standard packing box.

F—Impossibility of having an overflow pipe from the auxiliary tank to the storage tank.

G—Ordinary cork float gauge, with stem projecting through top of tank.

H—Auxiliary tank vented inside of basement.

I—Tank constructed of very thin material and unprotected from corrosion.

J—Tank resting on combustible support.

K—Support not fixed to the floor.

L—No means for cleaning auxiliary tank.

M—Pipe line to burner exposed.

N—Pipe connections to tank secured by soldered flanges.

It may be noted here than all the preceding items are not shown in detail in the illustration but the list may be considered as an example of what actually has been found in service.

Hazards Illustrated

The outstanding hazards connected with each of the features as lettered in Figure A are as follows:

A and B—Should a pipe line rupture or leak, the contents of the storage tank will be discharged into the basement.

C—Rubber will in time become useless as a gasket when in contact with the liquid fuel.

D—Breakage of the glass gauge will discharge the contents of the storage tank into the furnace room.

E—Valve is subject to leaks due to leaking stuffing box and if left open even slightly will discharge oil into the basement.

F—No means is provided for discharging excess oil to main storage.

G—Should tank be filled to capacity, liquid fuel will be discharged into the room.

H—In event of a basement fire oil vapors will increase the hazard.

I—Thin material subject to leakage.

J—In event of fire, supports will be consumed and fuel added to the flames.

K—External shocks supplied to the tank will strain connections and cause leakage of liquid fuel.

L—Necessitates dismantling lines, and in all probability reassembly will not be accomplished in a manner that will insure tightness of joints.

M—Application of external shocks to small pipe line will likely result in leakage or severe strains on connections, causing leakage.

N—Flanges which are not riveted as well as soldered are almost certain to fail and permit discharge of oil through the fuel opening into the tank.

Proper Installations

In studying the existing requirements covering the installation of tanks for domestic oil burning equipments, there are two installation forms that may be followed and which assure a reasonable degree of safety. These are shown in Figures B and C.

In Figure B, the labeled storage tank (O) is buried beneath the lowest level of basement floor line, filled and vented by means of a standard fill and vent fitting (P). The oil is drawn from the underground storage tank by means of a standard hand pump (M), through a standard strainer (N), and discharged into an auxiliary tank (E), constructed of a metal not less than No. 18 U. S. gauge and whose capacity does not exceed 60 gallons.

The union (K) used in this assembly are of the brass to iron conically seated type. The tank is equipped with an overflow line (L) at least one pipe size larger than the discharge line leading from the pump, and also with a weatherproof, hooded vent (B) terminating outside the building.

The auxiliary tank, Figure B, is also provided with an indicating gauge (D) of a type in which the breakage of the glass will not discharge into the building. The tank is mounted on a support (G) and (J), of a noncombustible material that is rigidly fixed to the floor. All connections to the tank are assembled by rivets and solder or by the welding process. The piping between the auxiliary tank and the burner (I), is either buried in a concrete trench or snugly run in corners of the basement to afford maximum protection. The tank is provided with a means (F) for cleaning out the usual foreign matter held in suspension in the liquid fuel which may pass the strainer (N).

In Figure C, the inside tank contains the entire storage. The same practice with respect to the tank is followed as shown for the auxiliary tank in Figure B, with the exception that the tank is filled from the outside of the building.

Storage of Fuel

The roofs of subways, the presence of tide waters and other of nature's natural obstructions have forced the users of oil burning devices to store liquid fuel above the point of consumption, and should a pipe line rupture occur in installations where pumps are employed to draw the fuel from the tank, a syphon may be

(Continued on Page 103)

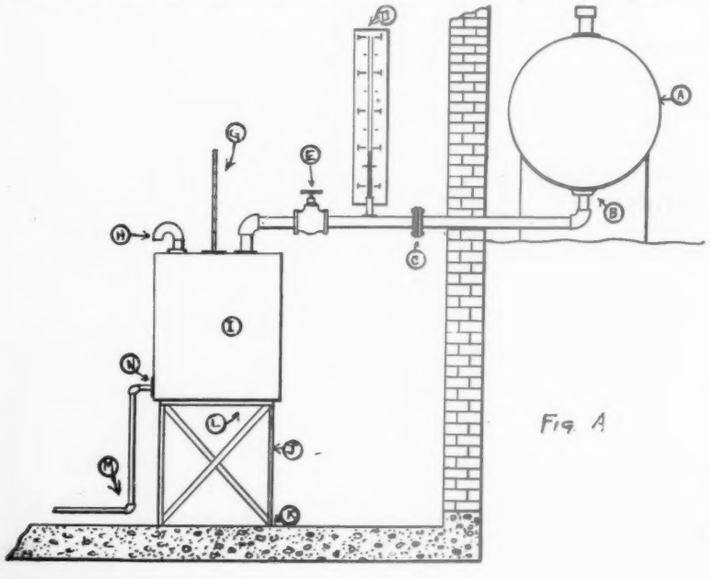

Fig. A

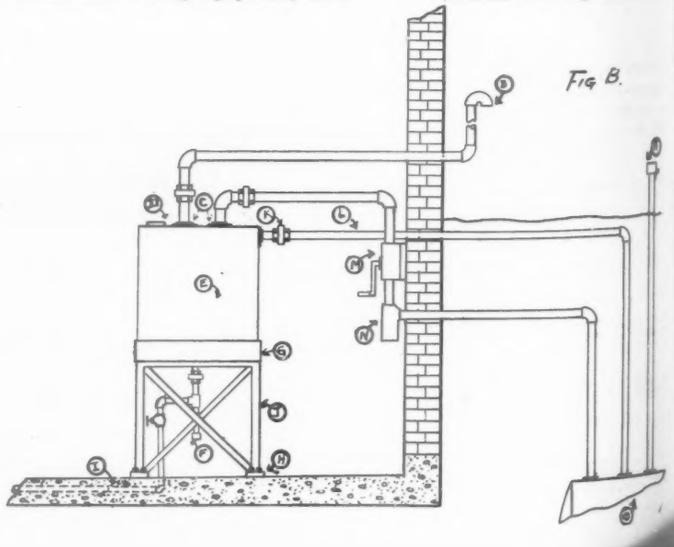

Fig B.

Two 112-foot Moore Combination Drilling Derricks used by the largest operators in Venezuela.

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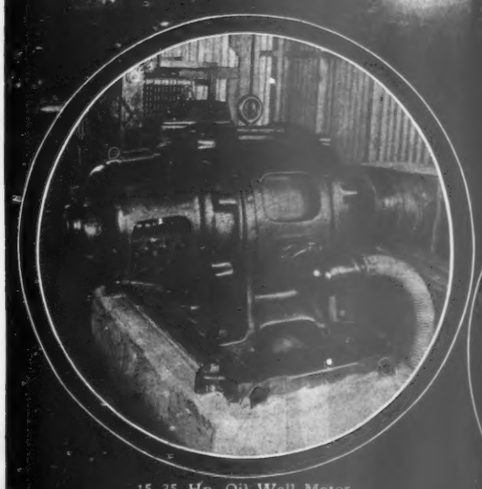
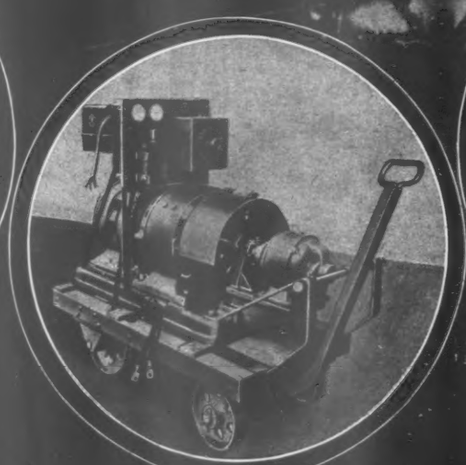
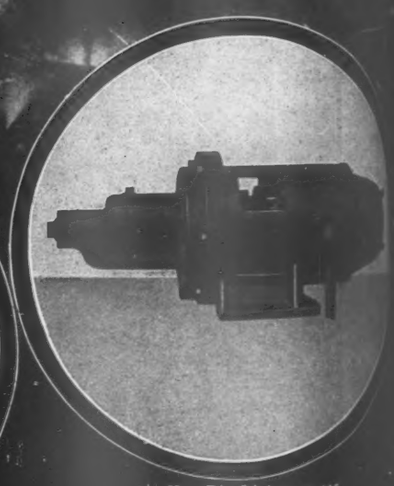


15-35 Hp. Oil Well Motor driving pump



Portable Motor Driven Arc Welding Outfit—175 Amperes



1½ Kw. Rig Lighter at 115 Volts—Direct Current Turbine

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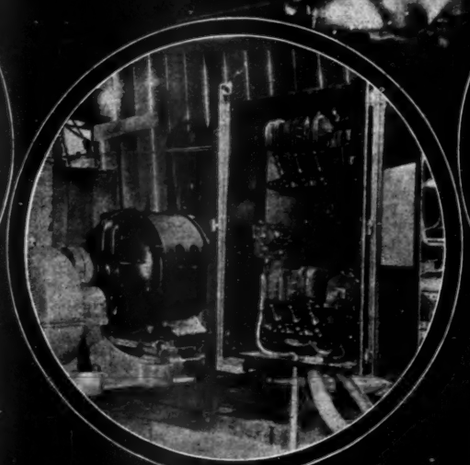

Rotary Drilling Motor and Control 100 Hp. C.W. Motor

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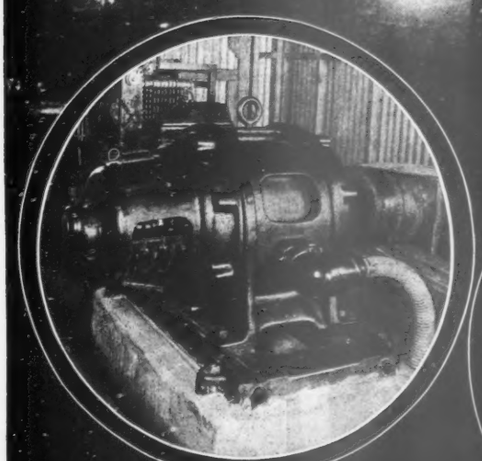
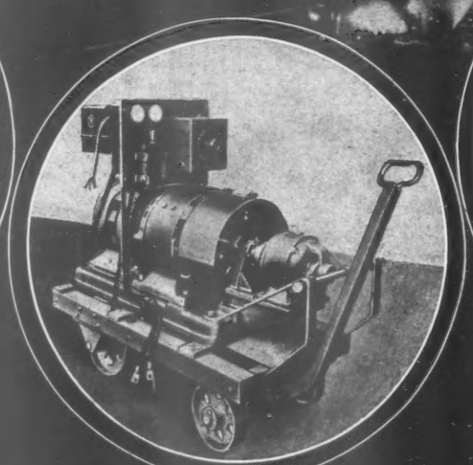
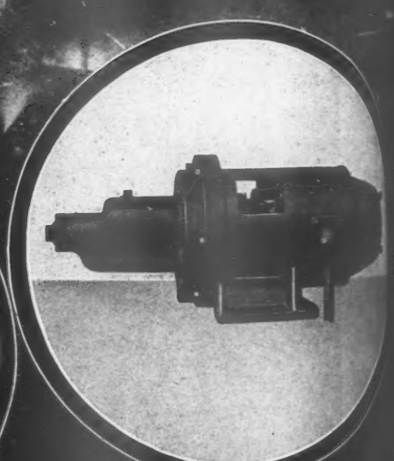


15-35 Hp. Oil Well Motor driving pump



Portable Motor Driven Arc Welding Outfit—175 Amperes



1½ Kw. Rig Lighter at 115 Volts—Direct Current Turbine

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Small Compressor Drive used in refineries and in casing head plants.

Oklahoma Field Operations

By C. D. Lockwood

Three leading fields of State continue downward trend of production. Operations also show decline. Production of new pool near city limits of Tulsa continues to increase. Good wells completed in Wewoka Field, one starting at 120 bbls. an hour. Operators expect advance in crude prices.

The change in Oklahoma field conditions continues to be more psychological than real, the principal interest during the past week having been centered on the rising prices for crude and the speculation as to when Mid-Continent quotations would be marked up.

All three of the leading fields continued their downward trend, Burbank showing a decline of 2,456 bbls. with a daily average production of 73,967 bbls. from 1,113 wells for the week ending December 19, Tonkawa slumping 2,239 bbls. daily with 44,907 bbls. production from 610 wells, and Wewoka declining 1,984 bbls. daily, its production amounting to 11,877 bbls. from 21 wells. The number of wells remained the same in the Burbank, while the figures for Tonkawa and Wewoka show a gain of 1 producer in each field.

The total number of operations in the Oklahoma fields for the week ending December 15 was less by 28 than the figure for the week previous, the decline being caused by a loss of 8 locations, 3 drilling wells and 6 wells shut down and 23 completions in comparison with the week before. The rigs alone showed a gain which amounted to 12. The figures for the last week were 53 locations, 221 rigs, 544 wells drilling, 454 wells shut down and 39 completions, making a total of 1,311 operations.

Wewoka Producers

The twenty-first producer in the Wewoka Field came in at the rate of 50 bbls. an hour. It was the Dixie Oil Co.'s No. 3 Lizzie Foster, in the NE cor. of Section 32-8-8, offsetting the Producers & Refiners Corp.'s No. 5 B. Foster, which was good for about the same initial production. The Independent Oil & Gas Co. and Sinclair's well offsetting it on the north came in for 120 bbls. per hour. Sand depth on the Dixie well was 3,118-30 feet.

The daily average production of the Wewoka Field for the week ended December 19, was as follows:

Company—	Wells	Bbls.
Dixie Oil Co., B. Foster	2	2,179
Dixie Oil Co., L. Foster	2	1,423
Dixie Oil Co., W. J. Long	3	1,683
Dixie Oil Co., M. Parker	1	18
Independent Oil & Gas Co. and Sinclair O. & G. Co., Walker	1	963
Independent Oil & Gas Co. and Atlantic Oil Prod. Co., Long	2	195
Independent Oil & Gas Co. and Sapulpa Ref. Co.	1	118
Lewis & Clark, Long	1	245
Magnolia Petroleum Co., Parker	1	58
Prod. & Ref. Corp., B. Foster.	5	4,834
Prod. & Ref. Corp., W. J. Long	1	142
Davis, Crosbie et al, Foster.	1	22
Total	21	11,823
Total last week	20	13,861
Difference	1	1,984

Tulsa's "backyard oil pool" continues to grow, the production from it amounting now to almost 3,000 bbls. daily. Munn Bros. drilled their No. 5 Mackey, NW cor. SW NW NE, Section 28-20-12, 9 feet deeper last Friday, making its total depth 2,062 feet, and it started off at the rate of 100 bbls. an hour, keeping up that flow the first 24 hours. It is now making about 50 bbls. an hour, and the three wells, Nos. 3, 4 and 5, are putting more than 2,000 bbls. daily into the tanks. The sand in No. 5 was topped at 1,942 feet. Considerable difficulty was experienced in shutting off the gas from the Burgess sand at about 1,670 feet, and the gas flow was estimated at 30,000,000 to 40,000,000 feet.

The Munn Bros.' No. 2, which was brought in about a year ago, is being deepened and is now flowing by heads at the rate of 300 bbls. a day. It was down to 2,076 feet Monday, having gone through the cap rock at 2,061 feet.

Burbank Operations

In the Burbank, Peters and others had a rig in place for their No. 2, CEL NE SE NW, Section 17-27-6. The Mid-Kansas Oil & Gas Co. shut down its No. 12, C SE NW SE, Section 35-37-5, at 2,933 feet to rig up company tools. The Carter Oil Co.'s No. 16, C SW NE NE, Section 22-27-5, was drilling by two strings of tools at 1,120 feet. The Sinclair Oil & Gas Co.'s No. 5, CSL SE SW NE, Section 15-27-5, was bailing water at 1,604 feet, to drill to the next casing point.

The Twin State Oil Co.'s No. 8 McCassey, CSL SW SE NW, Section 15-27-5, had a hole full of water at 1,380 feet to 1,385 feet, and was shut down at 1,550 feet with the 10-inch casing set at 1,550. In the same section, the Comar Oil Co.'s No. 3 Thompson, CSL SW NE SW, was shut down at 2,790 feet and the same company's No. 5 Thompson, SW cor. NW SW, at 2,785 feet.

The Mid-Kansas Oil & Gas Co.'s No. 5, CNL NE NW SE, Section 12-27-5, is drilling at 2,850 feet. The 6-inch casing will be set at this point and then the well will be shut down. Danciger and others have set the 6-inch at 2,785 feet in their No. 7 Thompson, NW cor. SW SW, in the same section. The Phillips Petroleum Co. has set the 10-inch casing in its No. 3 Taylor, SW cor. NE, Section 9-27-5, and has shut it down. In the same section, the Prairie Oil & Gas Co. was drilling by the bailer in its No. 2 Hobson, SE cor. NW.

The Roxana Petroleum Corp. was spudding No. 3 Pappan, CWL NW SW NE, Section 4-27-5, and was moving in a rig for No. 5 Pappan, CWL SW NW NE, same section. George S. Bole had the 15-inch casing set at 868 feet in his No. 2 Gaston, CEL NE SE NW, Section 4-27-5, and the Carter Oil Co. was drilling at 1,375 feet in its No. 1 Pappan, SW cor. NW, Section 3-27-5. The Carter Oil Co. and others made a location for No. 1, SW cor. SE, Section 34-28-5, and were moving in tools.

The Gladys Belle Oil Co. abandoned its No. 1 Taylor, NE cor. SE, Section 36-29-4, as dry at 3,550 feet.

In eastern Grant County, the Blackwell Oil & Gas Co. had a 3,500,000-foot gasser from sand at 4,005-14 feet in its No. 1 Snoffer, NW cor. Section 26-27-3w. Foster & Broadhurst were fishing for the underreamer at 1,060 feet in their No. 1 Bonham, in the NW NE, Section 11-26-5w, and the same interests had a cellar dug for their No. 1 Beggs, in the SW NE, Section 8-26-5w. Bullock and others were fishing for tools in their No. 1 Edwards, in the SE NW, Section 20-26-4w, at a total depth of 900 feet. Wrightsman was drilling his No. 1 Asher, in the SW NE SE, Section 3-26-6w.

In Other Counties

In western Garfield County, Bullop and others had a rig built for their No. 1 Dyche, SW cor. NE, Section 17-23-8w.

Northeast of Tonkawa, in Kay County, the Southwestern Petroleum Co. had a duster in its No. 1 Goodson, NE cor. Section 7-26-1e.

In Garvin County, Rinehart and others abandoned their No. 1 Lynn, SW cor. NE SW, Section 36-3n-3w, and are drilling at 500 feet in a twin to it, using rotary equipment.

The old Robberson Field of of Carter County brought forth a 160-bbl. producer on the swab from sand at 1,552-62 feet in the Texas & Pacific Coal & Oil Co.'s No. 2 Cosden-Derdyn, C NE SE SE, Section 8-1n-3w. There were also two dusters in the same vicinity, both being drilled by the Magnolia Petroleum Co. One was No. 16 Gibson, CSL SW SW SW, Section 10-1n-3w, which was abandoned at 2,460 feet, and the other was No. 1-A Parnell, SE cor. NE NE, Section 16-1n-3w, which was plugged at 2-185 feet. The Magnolia Petroleum Co. had a rig in place for its No. 4 Nelson, C NE NW NW, Section 25-2s-3w, a twin to No. 2.

In the Hewitt area, the Wolverine Oil Co.'s No. 44 Dillard, CNL NE SE NW, Section 22-4s-2w, was good for 40 bbls. from sands at 1,920-55 feet and 2,055-72 feet. Total depth was 2,266 feet. Westheimer's No. 16 Fee, NE cor. SE, Section 16-4s-2w, was drilling at 101 feet.

Southwest of Duncan in Stephens County, the McMan Oil Co. had a rig built for its No. 15 School Land, CEL SE SE NW, Section 33-1s-8w. Guy Brown was rigging up a rotary to drill deeper in his No. 5 Moore, CWL SE SW, Section 28-1s-8w, an old well, and the Calhoma Drilling Co. shut down its No. 4 McMahan, CWL SE NE SW, Section 18-1s-8w, after setting the 8-inch at 2,118 feet. The Magnolia Petroleum Co. was cleaning out No. 4 Johnson, CEL SE NW SW, Section 18-1s-8w, at 1,780 feet, the old total depth being 1,808 feet. The same company's No. 6 Edwards, SW cor. SE NW, Section 20-1s-8w, twin to No. 5, was drilling at 800 feet.

In Pawnee County, the Mutual Oil & Gas Co.'s No. 5, Lot 66, CWL SE SE NE, Section 25-20-9, was drilling at 1,200 feet, and Holmes and others' No. 1 Guffy, SE cor. SW NW, Section 27-20-9, was drilling at 400 feet.

Abandoned as Dry

In Creek County, the Mountain Fork Oil Co.'s No. 1 Harry, SE cor. SW SW, Section 28-15-10, was dry and abandoned at 3,255 feet. The Sapulpa Refining Co.'s No. 2 Sewell, SE cor. NW SE, Section 34-15-10, was good for 70 bbls. naturally from oil pay at 2,650-56 feet. Sand was topped at 2,638 feet. Daniels & Jenkins had a rig on the ground for their No. 1 Tiger, NE cor. SE SE, Section 8-14-10.

In Okmulgee County, the Southwest Oil Field abandoned as dry at 1,764 feet its No. 5 Simpson, SW cor. NW NW, Section 36-15-13. H. E. P. Stanford's No. 3 Nero, SE cor. NE NW, Section 36-14-13, an old well, was shut down at 2,530 feet. Rigs were in place for C. W. Wilmont's No. 2, SE cor. NE SE, Section 7-14-14, and Smith & Kessler's No. 2 Colbert, CEL NW NW, Section 16-14-14.

An old well was being drilled deeper by E. Price, his No. 6 Connor, NW cor. Section 6-14-15, being down 1,601 feet. Calhoun & Hulbarger's No. 4 Hallerman, CSL SW SE, Section 31-13-13, was dry and abandoned at 3,042 feet.

In Muskogee County, the Rexoline Oil Co.'s No. 5 Tipton, SW cor. SE, Section 24-14-16, was a duster at 1,725 feet. H. E. Hazlett's No. 2 Durant, NE cor. SE NW, Section 27-14-15, was shut down at 1,830 feet.

Burbank Production

Daily average production by companies in the Burbank Field during the week ended December 19 was as follows:

Company—	Wells	Bbls.
Carter Oil Co.	165	7,691
Comar Oil Co.	7	372
Cosden Oil & Gas Co.	68	3,758
Devonian Oil Co.	16	677
Gardner Pet. Co.	20	864
Gypsy Oil Co.	149	13,430
Kewanee Oil & Gas Co.	12	726
Laurel Oil & Gas Co.	16	696
Lorraine Petroleum Co.	15	780
Midland Oil Co.	5	164
Mid-Kansas Oil & Gas Co.	20	2,966
Peters & Oliphant	1	140
Phillips Pet. Co. and Delmar Oil Co.	2	2,307
Phillips Petroleum Co.	26	1,404
Phillips Pet. Co. and Skelly Oil Co.	141	7,220
Prairie Oil & Gas Co.	90	3,260
Producers & Refiners Corp.	28	770
Roxana Petroleum Corp.	57	970
Simons, Moore and others	29	660
Sinclair Oil & Gas Co.	131	4,830
Skelly Oil Co.	4	1,304
Triad-Osage Oil Co.	41	1,666
Twin State Oil Co.	8	300
Total	1,053	49,707

Kay County

George S. Bole	1	868
Carter Oil Co.	2	2,331
Comar Oil Co.	7	2,712
Cosden Oil & Gas Co.	3	2,340
Gypsy Oil Co.	6	2,870
Laurel Oil & Gas Co.	1	31
Phillips Petroleum Co.	9	4,907
Mid-Kansas Oil & Gas Co.	4	2,370
Pure Oil Co.	1	660
Roxana Petroleum Corp.	1	640
Dye-Thomalson and others	5	940
Skelly Oil Co. and Phillips Petroleum Co.	12	1,477
Sinclair Oil & Gas Co.	1	130
The Texas Company	1	1,115
Twin State Oil Co.	5	1,710
Total	60	24,190
Total Burbank	1,113	73,967

Pipe line runs were as follows: Gulf Pipe Line Co., 14,893 bbls.; Cosden Pipe Line Co., 6,718 bbls.; Kay County Gas Co., 5,439 bbls.; Osage Pipe Line Co., 1,649 bbls.; Oklahoma Pipe Line Co., 11,445 bbls.; Prairie Pipe Line Co., 6,290 bbls.; Sinclair Pipe Line Co., 3,101 bbls.; Moore Refining Co., 2,014 bbls.; Empire Pipe Line Co., 1,163 bbls.; Ozark Pipe Line Co., 2,405 bbls.; total, 55,117 bbls.

The amount run to storage during the week was as follows: Standish Pipe Line Co., 10,735 bbls.; Mid-Kansas Oil & Gas Co., 4,022 bbls.; Dye-Thomalson and others, 327 bbls.; Twin State Oil Co., 1,113 bbls.; George S. Bole, 558 bbls.; Sinclair Oil & Gas Co., 2,095 bbls. Total, 18,850 bbls.

Tonkawa Production

The daily average production of the Tonkawa Field for the week ended December 19 was as follows:

Company—	Wells	Bbls.
Amerada Petroleum Corp.	35	2,221
Blackwell Oil & Gas Co.	30	2,095
Carter Oil Co.	6	316
Champlin Refining Co.	3	69
Champlin Refining Co. and Twin State Oil Co.	1	5
Comar Oil Co.	276	18,671
Cosden Oil & Gas Co. and Marland Refining Co.	14	872
Gypsy Oil Co.	82	7,723
Healdton Oil & Gas Co.	19	2,795
McCaskey & Wentz	43	3,239
McMan Oil Co.	2	27
Pennok Oil Co.	26	1,625
Phillips Petroleum Co.	4	241
Prairie Oil & Gas Co.	12	943
Sinclair Oil & Gas Co.	1	15
Slick and Comar Oil Co.	21	2,335
Southwestern Petroleum Co.	14	731
The Texas Co.	4	49
White Eagle Oil & Refining Co.	7	410
Total	610	44,907

Pipe line runs from the field during the week were as follows: Kay County Gas Co., 21,727 bbls.; Ozark Pipe Line Co., 9,478 bbls.; Gulf Pipe Line Co., 7,186 bbls.; Empire Pipe Line Co., 935 bbls.; Champlin Refining Co., 1,019 bbls.; Prairie Oil & Gas Co., 969 bbls.; Enid Oil & Pipe Line Co., 412 bbls.; Oklahoma Pipe Line Co., 316 bbls., and Bolene Refining Co., 2,981 bbls. The amount run to lease storage was 284 bbls. Total, 44,907 bbls.

Osage County

Osage County had its usual quota of small producers and dusters, interspersed with a few gassers. The Mutual Oil Co.'s

(Continued on Page 107)

PARKERSBURG
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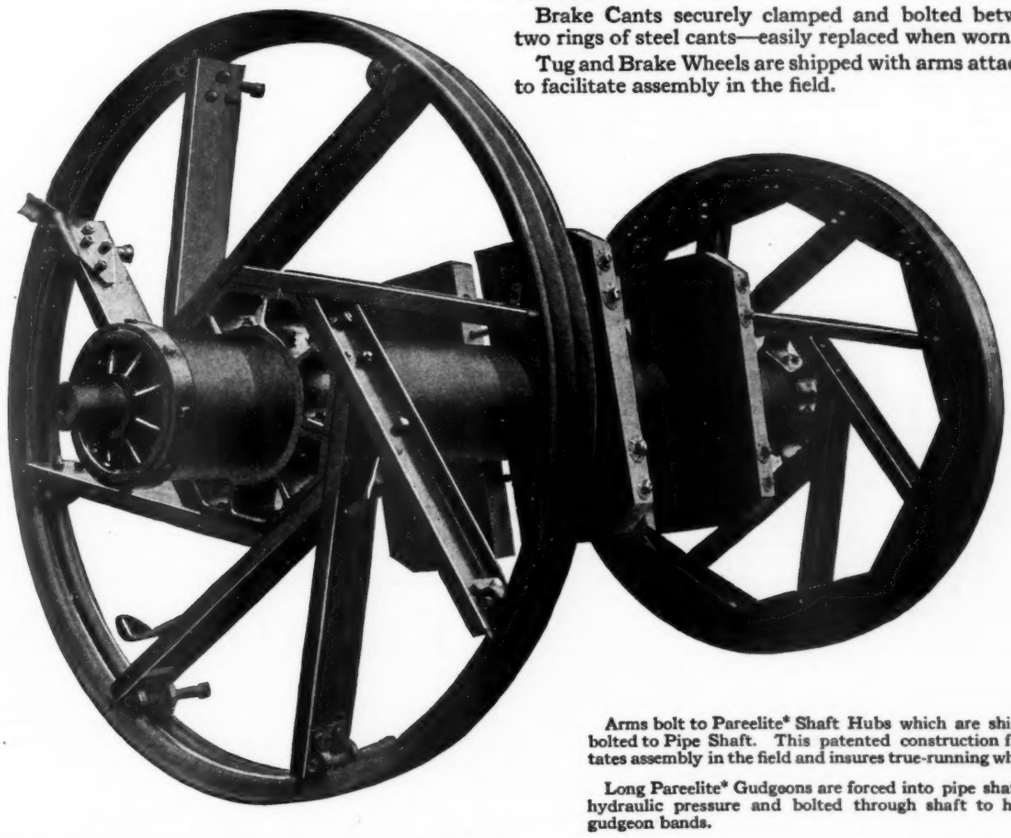

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Fields of the Central West

By Whit

Union Gas & Oil Co. brings in two of 100 bbls. each and one of 40 bbls. in Ayresville area, North Weir, Eastern Kentucky Field. Porter & Hovis have 25-bbl. producer in Hancock County, Ohio, and W. F. Johnson 20-bbl. pumper in Wood County. Central Illinois Petroleum Co. may have opened new field.

FINDLAY, Ohio, Dec. 24.—A vast number of old wells that have been producing for many years are being pulled out in the Trenton Rock Field as they are almost too light to pay for pumping, and as much of the pipe and other material is still in good shape it can be used in the drilling of other wells. The Ohio Oil Co. is doing the bulk of the pulling out work. The Ohio Oil Co. abandoned 165 wells in the Lima Field and other operators, 93, or a total of 258 wells, the largest number recorded for one month in the history of the field. Of this number 121 were in Wood County; 60 in Hancock; 5 in Allen; 18 in Auglaize; 18 in Sandusky; 14 in Mercer; 3 in Seneca; 9 in Lucas and 10 in Ottawa County.

In the Lima Field of northwestern Ohio for the week, W. F. Johnson drilled in a 20-bbl. pumper in No. 6 on the D. Lahy, Section 34, Perrysburg Township, Wood County, at 1,260 feet. Davis & Carroll are drilling No. 1 on the William Grolle, Section 33, same township. In Portage Township, R. Shuler and others have a rig in for a test on the George Weaver, Section 31. In Plain Township, the Allen Oil Co. is drilling No. 3, Roe heirs, Section 28.

In Eagle Township, Hancock County, Porter & Hovis drilled a 25-bbl. pumper in No. 11 Lem Aurand, Section 5, and drilling No. 12. In Union Township, the Beatty-Nickle Oil Co.'s No. 13 P. J. Heldman, Section 25, pumped 10 bbls.

Allen County

In Spencer Township, Allen County, the Federal Oil Co.'s No. 3 Frank Etzkorn, Section 15, pumped 15 bbls. In Noble Township, Auglaize County, the Bend Oil & Gas Co.'s No. 3 on the southeast corner of the W. Thomas, Section 31, pumped 4 bbls., and Wesley Sprague has a rig in for a test on the William Gochenour, Section 5, while in Moulton Township, same county, Charles Mertz and others have a rig in for a second test on the John Butcher, Section 9.

In Granville Township, Mercer County, the L. G. Neely Co.'s test on the J. Schleser, Section 19, pumped 5 bbls., while V. G. Lowery and others' No. 5 Steve Wendell, Section 19, pumped 8 bbls. Kinsell & Schelling are drilling a test on the H. Jones, Section 25, Gibson Township, and the June Oil Co. is drilling a second well on the Ben Hellworth, Section 25, Hopewell Township.

In York Township, Van Wert County, Boyd & Stelzer's test on the David Daviess, Section 15, is a duster.

The Sun Oil Co. has completed a duster in one of the deepest holes drilled for a long while in the Tiffin Field, No. 3 on the H. H. Seiple, Section 15, Eden Township, Seneca County, which struck the sand at 1,670 feet and drilled 630 feet in the Trenton, to a total depth of 2,300 feet, and was a dry hole. No. 2 recently completed on this farm, showed 260 bbls. at 290 feet in the sand. Nos. 4 and 5, same farm, are under way.

In Harris Township, Ottawa County, the Zorn-Hornung Co.'s No. 7 William Schott, Section 20, pumped 8 bbls. at 1,330 feet. Same company has a rig in for No. 8, Ed Yeastings, Section 17.

In Mississinewa Township, Darke County, I. Hance and others' No. 1. C. Ludy, Section 10, pumped 8 bbls., and No. 2 is drilling. In Allen Township, E. G. Henderson and others' No. 1 Joseph Smith, Section 6, pumped 5 bbls.

In McDonel Township, Hardin County, the Smith Oil Co. is drilling a deep hole on the Anthony J. Harpster farm, and down at last reports to a depth of 2,250 feet.

Indiana Field

The only completion reported from the Indiana Field during the week was a dry hole drilled by Perry Tichenour and others on the T. A. White, Section 9, White River Township, Gibson County, far north of the old Princeton Field and between that and the development of Wabash County, Ill. This well is a couple of miles northeast of the well reported last week on the Chapman farm, Section 24, same township, and was a dry hole at 1,800 feet, while the Chapman well was drilled to 2,410 feet.

In Madison Township, Pike County, also in the Princeton Field, the Ohio Oil Co. pulled out old wells to the number of 10 on eight different farms.

Illinois Field

The Central Illinois Petroleum Co. is to be congratulated over its effort to bring in a well in Section 16-10-8, Sumpter Township, Cumberland County, Illinois, near the town of Toledo, and west of the famous Siggins Pool in the same county, and west of the Casey Field proper. This well is on the Dobbs farm, and was spudded in on August 29, 1921. The well has now reached a depth of 2,838 feet and found oil in the Trenton rock at 2,725 feet, encountered salt water above at 2,670 feet and a string of 4½-inch casing will be set to a depth of 2,695 feet to cut off the salt water and will be given a 200-quart shot. When the Trenton was entered by the drill the hole had 2,600 feet of salt water in it and drilling was slow and tedious, but through this great amount of water, the showing of oil appeared and gas also found its way through the water in insufficient pressure to flow the heavy load of water. Indications are good for a well as soon as the water is shut off, and may mean the opening of a new field for Illinois.

In Bond Township, Lawrence County, the Ohio Oil Co.'s No. 1 on the John Steffey, Section 28, is reported at 8 bbls. from 958 feet.

Central Ohio Fields

A few completions are reported from the Central Ohio Field during the week, with a few fair gas wells and the usual number of dry holes. In Penfield Township, Lorain County, C. W. Shaffer has at last completed his Nos. 2, 3, 4, 7 and 8 on the L. and C. Wolfe farm, Lot 59, and all proved failures at depths varying from 205 to 210 feet, the usual depth of the pay sand in that section. These wells have been under way for at least two years.

In Walnut Township, Fairfield County, the Ohio Fuel Gas Co.'s No. 2 Roscoe Helmick, Section 30, drilled in a dry hole. In Orange Township, Ashland County, the Logan Gas Co. brought in a nice gas well at No. 3 William Monteith, Section 7.

In Medina County, Lafayette Township, the Ohio Fuel Gas Co.'s No. 1 G. W. Cartson, Section 9, is a light gas well. In York Township, the Central Ohio Gas Co. drilled a fair gas well in No. 1 Charles Wolfe 103 acres, Section 13.

In Wayne Township, Wayne County, the Ohio Fuel Gas Co. got a dry hole on the A. Bucher, Section 29. In Cannan Township, the Central Ohio Gas Co.'s No. 1 Mary Lee lease, in the village of Creton on a 4-acre lot, Section 1, was a dry hole. C. S. Eby and others' No. 1 S. Eby, was a duster, as was G. C. Miracle and others' No. 1 Frank Ensminger, Section 1, and on a 6-acre lease. The Reese Gas Co.'s No. 4 Z. T. Reese, Section 33, is a fair gas well. In Plain Township, the Logan Gas Co. drilled a light gas well in No. 1 Ora Flinckinger, Section 8.

In Monroe Township, Holmes County, a new lead has been found by the East Ohio Gas Co., which drilled in a couple of big gas wells on the Thomas O'Connor farm, Section 12, and on the C. G. Jarvis, Section 11. In Prairie Township, the Ohio Fuel Gas Co. got a nice gas well in No. 2 Cornelius Leckey, Section 30, while the Ohio Oil Co. drilled a dry hole in the F. A. and I. Phillips, Section 31.

In Washington Township, Jackson County, the Ohio Fuel Gas Co.'s No. 1 J. W. Marsh, Section 34, was dry.

In Carthage Township, Athens County, the Shade Run Oil & Gas Co.'s No. 7 F. W. Chapman, is a fair gas well in the stray sand, and the Bradford Oil & Gas Co.'s No. 3 T. Dunlavey, Section 11, is a good gas well. In Troy Township, same county, McIntry & Nolan's No. 1 Flemming, Section 24, is a fair gas well, while W. F. Kempf and others' No. 1 Brandenberg, Section 17, is a light gas well.

Eastern Kentucky Field

Operators over the Eastern Kentucky fields report few completions. In the Cooper district of Wayne County, Marsh and others drilled a 10-bbl. pumper on the J. A. Brown farm.

In the North Weir Field of Lawrence-Johnson counties, the Union Gas & Oil Co.'s late completions are among the best wells completed in the Ayresville area for a long time. Its No. 29 on the J. J. Gambill is a natural producer estimated at 100 bbls., and its No. 3 Herbert Skaggs No. 2 farm, is another of the same kind, and with the same flush production. No. 4 E. H. Skaggs, is estimated at 20 bbls.; No. 3 Harrison Bailey, at 15 bbls.; No. 14 Levis Skaggs, at 40 bbls.; No. 2 James Dials at 15 bbls., while Tom Hays' well No. 7 on the Margaret Stump about 3 miles south of Louisa, is estimated at 10 bbls.

In the South Weir Field of Johnson-Magoffin counties, R. G. Gillespie's No. 11 Darius Conley farm, estimated at 10 bbls., as is the Atlantic Oil Producing Co.'s No. 11 Henry Cantrell farm. The Mid South Oil Co.'s No. 2 Sam Blanton 100 acres, estimated at 10 bbls., and its No. 4 Henry Blanton at 5 bbls. T. J. Tonkin and others' No. 5 Isaac Williams, reported at 5 bbls.

The runs for the week by the Cumberland Pipe Line Co., though its gathering lines from the eastern Kentucky fields totaled 84,605.97 bbls., for a daily average of 14,100.99 bbls., while the previous week's totals were 84,656.64 bbls., for a daily average of 14,109.44 bbls.

Kansas Oil Field News

By C. D. Lockwood

The M. M. Valerious Oil Co.'s wildcat in Russell County, Kansas, was swabbed every other day last week with an average production of 150 bbls., or 75 bbls. a day. Interest in this well continues to be keen, as opinion among scouts and others who have studied conditions on the ground seems to be almost unanimous that an oil field exists somewhere in the vicinity, although this particular test is not regarded as important in itself, the way it now stands. Most reliable observers think that the country surrounding it is due to bring forth something of interest, though, and various companies are continuing to assemble acreage in Russell and adjoining counties.

Operations remained stationary during the week ending December 15, the total number of 222 being exactly the same as for the week previous. However, there was an increase of 12 wells drilling and a decrease of 5 rigs and 5 wells shut down, and only one completion was reported in comparison with 3 completions during the week before. The figures for the week were as follows: Locations, 29; rigs, 45; wells drilling, 72; wells shut down, 75; completion, 1.

In Marion County, Lampe and others abandoned their No. 1 Anderson, SW cor. NW SW, Section 2-20-3, as dry at 2,696 feet, leaving the tools in the hole.

In Harvey County, Mason and others' No. 1 Hawk, NW cor. SE, Section 4-23-2, swabbed 215 bbls. the first 24 hours from sand at 2,440-42 feet, the water broke in around the 6-inch pipe and the 5-inch was being run. The Derby Oil Co. was having trouble with the 10-inch pipe at 1,490 feet in its No. 1 Brandeweide, SE cor. NW NE, Section 4-23-2. The Newton Oil Corp.'s No. 1 Witschenski, CSL SE SW NE, Section 4-23-2, was drilling at 2,120 feet.

Cowley County

In Cowley County, Milligan & Hayhurst had a well that was estimated at 20 bbls. after a 20-quart shot in sand at 2,331-36 feet. It was their No. 1 Elrod, NW cor. SE, Section 6-32-5.

Sutter & Shawver were drilling at 2,350 feet in their No. 1 Newton, SE cor. NW NE, Section 15-30-4, and Sutter & Stearns at 2,475 feet in their No. 1 Maganunson, NW cor. NE SE, Section 15-30-4. The Gypsy Oil Co.'s No. 2 Jyson, CSL SW SW, Section 11-30-4, was completed for 50 bbls. as the result of a 30-quart shot in sand at 2,761-73 feet, shale having been found from the bottom of the sand to 2,793 feet.

Martin & Wilson encountered two gas sands in their No. 1 Eastman, SW cor. Section 5-31-6, the first being found at 2,470-2,505 feet, making 1,500,000 feet of gas and the second at 2,834-37 feet, being good for 3,500,000 feet. The Titus Oil Co.'s No. 1 Eastman, NE cor. SE NE, Section 31-31-6, made 4,500,000 feet of gas from sand at 2,743-60 feet.

Milligan and others shot their No. 2 Elrod, NW cor. SE, Section 6-32-5, with 20 quarts in sand at 2,331-36 feet, and it made 20 bbls.

The Champlin Refining Co.'s No. 1 Hitchcock, NW cor. NE, Section 16-30-1w, Sumner County, was fishing for the bailer with 3,000 feet of oil in the hole after a 15-quart shot in sand at 3,538-66 feet. It will be shot again. Al-

(Continued on Page 102)

When Powell Broke Loose

Humble needed tanks, and needed them badly. They called on P. I. W. with the result shown above. In less than four days from receipt of the first order a solid trainload of 10 *complete* 55's was enroute to Corsicana, making record time. Following the first train came a second and third, all in less than two weeks.

The Humble farm at Corsicana is shown below. In the foreground appears a veteran, P. I. W. field crew. The progress of the work can be seen. Ready for oil in less than three weeks!

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California Field Operations

By L. P. Stockman

Sentinel Oil Co.'s No. 1 Joughin, Torrance, 2,000 bbls., important extension. Leonard Oil Co.'s No. 11 makes 2,000 bbls., Southern California Drilling Co.'s No. 1 Olds, 1,640. Water trouble from too deep drilling. Geo. F. Getty's 800-bbl. well from Foix zone, thought exhausted, turns attention to Bell zone.

LOS ANGELES, Cal., Dec. 22.—Notwithstanding Torrance has shown very very little change in production, the field continues to be the center of interest, especially that part in which the limits are still undefined. The best completion in this immediate area, the southeastern part of the field, and those interested, are very well satisfied with recent developments. The Sentinel Oil Co.'s No. 1 Joughin, in addition to being an excellent well, proved up considerable acreage and resulted in the location of several new wells in the immediate vicinity. Number 1 Joughin, completed at 3,812 feet and finished with a 6¼-inch oil string landed at 3,800 feet, came in flowing a little less than 2,000 bbls. a day. This well, about a quarter of a mile from the Standard Oil Co.'s No. 1 Dominguez, completed two weeks ago, is of even more importance than the latter, principally because of a larger initial production and a better quality of oil.

The Standard's No. 1 Dominguez, first to prove up this particular area, was brought in several weeks ago doing 610 bbls. a day of 19.8 gravity oil, while the Sentinel's No. 1 Joughin was brought in doing 2,000 bbls. a day of 23.6 gravity oil. The ouput from No. 1 Joughin, which is clean, is flowing through a 7/8-inch bean under a pressure of 210 pounds. Its importance cannot be over estimated, as several nearby lease holders have been awaiting the outcome of this well before beginning operations. As soon as it was completed, the Shell Oil Co. started three offsets, two on its March lease, offsetting No. 1 Joughin to the north, and one on the Kettler lease, an offset just to the west. The Standard is also planning to take advantage of this extension and has located two new wells, one a few hundred feet north of No. 1 Dominguez and the other south of No. 1 Dominguez and west of the Shell Oil Co.'s March lease. The Sentinel Oil Co. lost no time after the completion of No. 1 Joughin and located an offset to the west, while E. J. Miley erected a rig nearby on property subleased from the Sentinel and will spud in within 10 days.

Shell Well Watched

Attention is now centered on the Shell Oil Co.'s No. 1 Keystone, a half mile east of the Standard's Dominguez lease. This well is rapidly approaching completion depth, which, it is believed, will be around 3,000 feet, the same depth from which both the Standard's No. 1 Dominguez and the Sentinel Oil Co.'s No. 1 Joughin were brought in. The Shell reports a little showing in this well and, while no prediction is made as to the outcome, officials expect commercial production. Number 1 Keystone is being closely watched and a successful completion will result in the drilling of several other wells nearby.

With the exception of the Sentinel's No. 1 Joughin, the Leonard Oil Co.'s well No. 11 was the most important completion. This well, completed in the record time of 55 days, was drilled to 3,750 feet and finished with a 6¼-inch oil string at 3,748 feet. This well was also doing approximately 2,000 bbls. and, in addition to this large initial production, it registered a pressure of 550 pounds. The oil, which is clean and testing 25.1 degrees, is flowing through a ¾-inch bean.

The Consolidated Mutual Oil Co. drilled out the cement for the second time in its No. 1 Torrance and, when the well was found to be wet, a cement plug was put on the bottom at 3,793 feet. As a result of the unsuccessful shutoff in this well, the Associated Oil Co. has decided to wait further developments before spudding in its No. 1 Torrance. The Associated recently erected this rig and expected to start immediate operations, but it is reported that the company will now wait for the solution of the water problem in the Consolidated Mutual's No. 1 before spudding in this well. The Consolidated Mutual had a little better success with its wells Nos. 2 and 3, located on the same lease and brought in two 950-bbl. producers. Well No. 2, the company's latest completions, was drilled to 3,749 feet and finished with a 6¼-inch oil string landed on bottom. The oil from this well is clean and tests 24.8 degrees. The company's No. 3 was completed at 3,770 feet and resulted in a 955-bbl. well producing 24.7 gravity oil with a cut of 1 per cent. Both wells are flowing through 5/8-inch beans, the pressure of the former being 175 pounds and on the latter 190 pounds. During the current week No. 4 was also completed and when it is put on production at 3,743 feet it will probably duplicate Nos. 2 and 3.

Several 1,000-bbl. Wells

One thousand barrel wells were much in evidence during the week, the Belridge Oil Co.'s No. 1 White and the Bush-Voorhies Oil Co.'s No. 1 Rogers both being listed as completions at approximately 1,000 bbls. each. No. 1 White, drilled to 3,730 feet and finished with a 6¼-inch oil string, was swabbed in during the latter part of the week and put 996 bbls. of 25.3 gravity oil into the tanks during the first 24 hours. Number 1 Rogers of the Bush-Voorhies Oil Co., an offset to the Fortuna Oil Co.'s No. 1 Phenis, a 975-bbl. well, was put on production doing 994 bbls. of clean 25.1 gravity oil. This new well, completed at 3,775 feet, is flowing through a ¾-inch bean under a pressure of 275 pounds. The McDonnell Corp.'s well No. 1 and the Southwest Development Co.'s No. 1 Ruddock are also listed as 1,000 bbl. producers, the actual output of the former being 994 bbls. and of the latter, 992 bbls. The McDonnell Corp.'s well was drilled by the Bush Drilling Co. under contract to 3,615 feet and was finished with a 4½-inch oil string. The production, which is clean and tests 24.8 degrees, is flowing through a ¾-inch bean under a pressure of 165 pounds. In addition to this completion, the company reports 2,675 feet of hole in No. 2 and a rig up for No. 3. The Southwest Development Co.'s No. 1 Ruddock was drilled by the Rogers-Edwards Drilling Co. to 3,725 feet and finished with a 4½-inch oil string. The output from this well, which tests 25.6 degrees and shows a cut of 1½ per cent, is also flowing through a ¾-inch bean, the pressure, however, of 210 pounds being slightly greater than that registered by the McDonnell Corp.'s well No. 1.

The Chanslor-Canfield Midway Oil Co., the largest operator and having the largest company production, added two new wells to its list of producers and is swabbing another for production. The company's new wells, both on the Torrance lease, are Nos. 16 and 23. The latter, the larger of the two, was finished at 3,770 feet with an 8¼-inch oil string landed on bottom and registered an initial production of 695 bbls. Number 16 Torrance was drilled to 3,730 feet and finished with a 6¼-inch oil string landed on bottom. It was completed at a slightly shallower depth than No. 23 and showed a slightly smaller production, 622 bbls. The oil from both tests approximately 25.4 degrees, the output from No. 16 Torrance showing a cut of ¼ of 1 per cent, while production from No. 23 Torrance showed a cut of 1 per cent.

Two Good Producers

The Southern California Drilling Co. completed an excellent well during the latter part of the week, after drilling it to 3,788 feet. The company's new well, No. 1 Olds, was finished with a 6¼-inch oil string and brought in flowing 1,640 bbls. a day of clean 25.1 gravity oil. It is flowing through a 7/8-inch bean, under a pressure of 520 pounds. The last well put on production during the week was the White Star Oil Co.'s well No. 1, which came in doing 1,500 bbls. a day from 3,791 feet. The oil, flowing through a 5/8-inch bean under a pressure of 210 pounds, tests 26.1 degrees and shows a cut of 2 per cent. Several wells in the field during the past few weeks have developed water trouble, but it is not believed that this condition is impossible of solution, as in nearly every case the predominance of water is attributed to too deep drilling. Of course, it is sometimes very difficult to exclude bottom water and several operators have been severely criticized for jeopardizing nearby wells by drilling too deep. Several wells to date have encountered this bottom water but most of them have been successful in excluding it almost entirely. The Federal Drilling Co.'s No. 1 Gerner is the latest well to run into this bottom water and it will have to be plugged back from 3,870 feet to around the 3,800-foot level, from which depth it will probably be capable of making 300 or 400 bbls. a day.

Long Beach

During the coming week the number of completions at Long Beach should be a little larger than the average for the past two weeks, but is not believed even this new production will be sufficient to arrest the field's decline. Although there were a few good wells brought in during the past several days, the total number of completions was small and excellent wells were at a premium. The largest well stands to the credit of the United Oil Co. and was located on its Denni lease. No. 2 Denni, the company's new producer, was a recompletion after being redrilled and deepened from 3,164 feet, its former production depth, to 5,050 feet. Upon being returned to production, the well showed an initial output of 1,550 bbls. of fluid, 15 per cent of which, however, was water. A Delaney trap, which is taking most of the water out of the oil, was installed and the production, which tests 28.2 degrees, is now much cleaner. It has been noted that recent completions from the deep zone at Long Beach have been getting much smaller and far more unsatisfactory as time goes on.

During the past few weeks several comparatively small wells have been brought in from the 5,000-foot level and the United Oil Co.'s No. 2 Denni shows the deep sand at this point to be getting less productive. The only redeeming feature of this completion is the quantity of oil produced, but it is doubtful if this maximum output will be maintained for over a few weeks.

The Shell Oil Co. also completed a deep well and, while the sand at this point was productive of a 1,050-bbl. well, if brought in two months ago it would have been good for at least 2,500 bbls. The Shell's new producer was No. 5 Andrews, finished at 5,007 feet. It is producing slightly less than 1,050 bbls. a day of 25.2 gravity oil with a cut of 2 per cent through a 1⅛-inch bean, under a pressure of 325 pounds. The Shell has an-

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TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Following is a list, of tankers, date departed, destination, kind of cargo and amount in barrels:

E. T. Bedford, December 10, New York, crude	117,000
Tuxpanoil, December 10, New York, crude	75,000
S. M. Spalding, December 11, New Orleans, crude	74,000
Miller County, December 11, Philadelphia, crude	76,000
Swift Eagle, December 11, Fall River, crude	82,000
San Gaspar (Br.), December 11, Tampico, crude	116,000
Dillwyn, December 12, New York, crude	78,000
F. H. Hillman, December 12, Providence, refined	105,000
Algonquin, December 12, Providence, crude	73,000
Agwimex, December 13, Baltimore, crude	94,000
J. A. Moffett, Jr., December 13, New York, crude	118,000
H. H. Rogers, December 13, New York, crude	117,000
Livingston Roe, December 14, New York, crude	89,000
Walter Jennings, December 14, New York, crude	118,000
San Gerardo (Br.), December 14, Tampico, crude	117,000
Charles Pratt, December 15, New York, crude	113,000
James Magee, December 15, New York, crude	117,000
W. S. Rheem, December 15, New York, crude	92,000
John D. Archbold, December 16, New York, crude	132,000
J. N. Pew, December 16, Philadelphia, crude	95,000
Coastwise	
S. C. T. Dodd, December 10, Richmond, crude	77,000
La Purisima, December 10, San Diego, refined	40,000
U. S. Tanker Ramapo, December 11, San Diego, fuel	74,000
Montebello, December 11, Martinez, crude	77,000
Capt. A. F. Lucas, December 11, Willbridge, refined	31,000
Lubrico, December 12, Richmond, crude	78,000
La Purisima, December 12, Seattle, refined	35,000
Trimountain, December 12, Seattle, fuel	64,000
J. A. Moffett, December 13, Richmond, crude	63,000
Los Angeles, December 14, Oleum, crude	74,000
S. C. T. Dodd, December 15, Richmond, crude	79,000
El Segundo, December 15, Point Wells, refined	28,000
Mojave, December 15, Portland, fuel	69,000
W. S. Miller, December 16, Richmond, crude	74,000
Montebello, December 16, Martinez, crude	74,000
Frank G. Drum, December 16, Avon, crude	76,000
Exports	
Tsurumi (Jap), December 15, Japan, fuel	58,000
From San Francisco	
Liebre, December 12, Astoria, fuel	62,000
Pearl Shell, December 12, Lands End, refined	53,000
Kewanee, December 14, Los Angeles, refined	26,000
Charlie Watson, December 16, Eureka, refined	16,000
Warwick, December 17, Seattle, refined	33,000
From Port San Luis	
Hoven, December 11, Astoria, fuel	72,000
Stockton, December 15, Seattle, fuel	78,000
From Ventura	
Oleum, December 16, Oleum, crude	33,000

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North-Central Texas Field

By Dan F. Dugan

Shappel and others' wildcat south of Wichita Falls makes 75 bbls. in one hour and starts leasing activity. The Texas Co.'s 2,500,000-foot gasser in Gray County extends Amarillo district 35 miles southeast. Weekly Pet. Co.'s No. 2 Martin, Caddo Pool, makes 320 bbls. Pigg Co. gets two in Hirschi.

FORT WORTH, Tex., Dec. 24.—In line with general depressing conditions that overshadow the North Central Texas Field, production runs for the past seven days show a loss for the entire field of 1,705 bbls. compared with the previous week. The largest increase was in the Iowa Park runs to which is credited Archer County's production, which shows the largest daily output since oil was discovered in the county. This increase was made on account of the connecting up of some of the recent big completions on the Geraldine Townsite Pool. The total increase for the week of the Iowa Park district is reported at 1,200 bbls. daily. Severe losses were reported from Electra 525 bbls. Stephens County, 775 bbls., and the wildcat territories, 1,730 bbls. daily, with a total production reported of 112,100 bbls., against 113,805 bbls. for the previous week, a loss of 1,705 bbls. daily.

Stephens County

The larger percent of the properties of the Cooper-Henderson Oil Co. were sold for approximately $86,500 by the District Court at Breckenridge Tuesday to satisfy creditors' claims. William Little has been in charge of the company's operations for the past two years. R. W. Raney of Breckenridge, purchased most of the assets. Pitzer & West bought one well for $3,000. The proceeds of the sale will be distributed to around 15 creditors.

The Caddo Pool in the north part of the county reports a completion, the Weekley Petroleum Co.'s No. 2 Martin, which is doing 320 bbls. initial from 3,860-80 feet, after a shot.

The Mid-Kansas Oil & Gas Co.'s No. 2 Couger is the only near completion of interest. It is showing both oil and gas from the 3,120-foot level and is still drilling.

Eastland County

Terrific storms almost stopped operations in this county the past week. Leasing is active and some drilling contracts have been made surrounding the Rosenfield shallow producer 3 miles east of Carbon. The well is making around 20 bbls. daily from a depth of 480 feet. It is reported more than 2 miles from any other production and operators from shallow pools in other sections of the State have secured acreage and expect to begin drilling in the near future.

Roads away from the main highways are almost impassable and only such material and supplies are being moved as are absolutely necessary. Several wells approaching the sand have been held up and will probably be completed during the coming week.

Three miles north of Eastland, Webb T. Eby missed the Ranger pay in his No. 5 Miller. He will drill to a deeper sand found at a depth of 3,700 feet and if this is not productive the well will be shot in the black lime where there is a good showing of oil. The Turner & Clayton No. 1 Steele, 1 mile north of Eastland, should be completed within the next two or three days. It is drilling below 3,100 feet.

Two sections of the county report completions—the shallow field south of Ranger having a new 20-bbl. pumper in the Humble Oil & Refining Co.'s No. 4 Merrill at 1,230 feet. The Desdemona district reporting a 40-bbl. producer on its western fringe, the Gates Oil Co.'s No. 4 Hawkins at 2,615 feet.

The Simms Oil Co. has a semi-completion in No. 1 Lynn according to a late field report at 2,600 feet. This well is east of Oil City and is said to be making 50 bbls. from the top of the sand. C. W. Whitehead is drilling at 1,100 feet in No. 1 E. S. Graham, 1 mile east from the court house at Graham. Bob Lindsay and others have spudded in No. 1 Costello in the Wild Bend district. Bashara and others, who completed the discovery well, 10 miles southwest from Graham last summer, are now moving in on No. 1 Marshall in survey 4,270, 2,000 feet southwest from the discovery well.

The Seaboard Oil & Gas Co. has made three locations this week on the Hughes land in the Herron City district.

Increasing activity among pipe line companies is thought to indicate a scarcity in crude within the near future.

Archer County

On the Egbert lease, northwest of the Jetter producer, the R. M. F. Oil Co.'s No. 2 at 1,600 feet is swabbing and flowing with an estimated production of between 200 and 300 bbls. daily.

The Featherstone and others' No. 7-C Wilson is swabbing 500 bbls. at 1,695 feet.

On the L. F. Wilson land in Block 20, Geraldine Townsite, the Dorain & McCarty Oil Co.'s No. 1 Wilson is bailing the sand at 1,590 feet and it is showing up for a good producer.

Wildcat Near Wichita Falls

Operations in the fields south and west of Electra were hampered by drenching rains early in the week. Several new locations were made, but the majority were on the older leases owned by the larger companies. On the Texhoma Oil & Refining Co.'s tracts a few tests are drilling, as is the case on the Magnolia and The Texas Co.'s' properties.

The performances of Shappel and others' No. 1 Jackson, a wildcat test 10 miles southwest of Wichita Falls, which made a flow of 75 bbls. in one hour, after being bailed, is easily the feature of the week for the county. This wildcat is yet to be cleaned out and completed, although it has made a number of strong flows from the sand just below 1,800 feet.

Kruger and others have picked up the 1,800-foot Electra sand in No. 7 Waggoner, a short distance south of Electra, in a location in the pool at present confined to production from the 1,500-foot and shallower sands. Trouble with shutting off mud is reported, but even with this handicap, the well made a flow to the top of the derrick.

The near completion of the Shappel No. 1 Jackson as a producer has stimulated operations in its immediate territory. The nearest production is the Stedham-Thrasher No. 1 Daume, 1 mile southwest, a 50-bbl. producer which came in at a shallower depth about a month ago. Over a mile due south, there is some shallow production, near the town of Holliday. There has been considerable drilling to the south and southeast of the well, but comparatively little in other directions.

To the north about 400 feet, the Panhandle Refining Co. is erecting a derrick on Section 20, Chilson land, and will drill at once. In the southeast corner of Sections 21, Chilson, Gilliland and others have made a location for their initial test. To the east on 40 acres out of the Jackson land, John O'Donohoe has made a contract to drill a well. About 2,000 feet south of the well, Nat Chenault has purchased 40 acres and will drill a test. Several tracts have been acquired by the Texhoma Oil & Refining Co. on the adjoining land with the intention of starting two tests at once.

Burkburnett-Hirschi

The largest completion reported for the week is the Pigg Oil Co.'s No. 17 Hirschi. It is showing 175 bbls. at 1,875 feet. The same company's No. 18 Hirschi is showing 350 bbls. daily at 1,890 feet and not yet completed.

Picking up a sand at 2,275 feet showing for estimated 1,500,000 feet of gas, The Texas Co.'s No. 1 Saunders, Section 3, Block 1, Gray County, is considered by operators as a 35-mile southeastern extension of the Amarillo gas producing district.

Pampa, the nearest railway point, is 10 miles northwest. The Texas Co.'s well is about midway between Sayre, Okla., and Carson, Hutchinson County, Texas. A master gauge valve is being installed and the boiler will be moved back before the test is drilled deeper.

Completions Reported

Completions reported in the Burkburnett and Hirschi Pools are Brown and others' No. 2 Burnett, dry at 855 feet; John O'Neil's No. 4 Saunders, 65 bbls. at 1,890 feet; Pigg Oil Co.'s No. 17 Hirschi, 175 bbls. at 1,875 feet.

Drilling—Baldwin Brothers' No. 12-C Kennedy, drilling in brown shale at 1,515 feet; Gulf Production Co.'s No. 14 Dale, flowing estimated 200 bbls. at 1,870 feet; No. 15 Dale, drilling in soft shale at 1,805 feet; No. 1 Saunders, drilling at 1,105 feet; Kemp and others No. 6 Eads, drilling in soft rock at 585 feet; Lewis and others' No. 2 George, shut down for a cable tool rig at 2,575 feet; McDabb Oil Co.'s No. 2-A Saunders, standardizing after setting 6¾-inch casing at 1,815 feet; John O'Neil's No. 5 Saunders, drilling in blue shale at 1,685 feet; No. 6 Saunders, drilling at 1,725 feet; Perkins and others' No. 2 Saunders, rigging to pump and test an oil sand at 1,860 feet; No. 3 Saunders, drilling in shell rock at 1,670 feet; No. 4 Saunders, drilling at 455 feet; Pigg Oil Co.'s No. 19 Hirschi, drilling in brown shale at 1,405 feet; Sun Oil Co.'s No. 25 Hirschi, drilling at 1,807 feet; Wellman and others' No. 1 Wolf, drilling at 1,600 feet.

Wichita-Electra

Completions—Panhandle Oil & Refining Co.'s No. 1 Marshall, dry at 2,200 feet; Texhoma Oil & Refining Co.'s No. 11-F Waggoner, 88 bbls. at 1,950 feet; Carter and others' No. 2 K. & K., 135 bbls. at 1,800 feet.

Drilling—Magnolia Petroleum Co.'s No. 7 Douglas, drilling at 435 feet; Memphis Petroleum Co.'s No. 3 Hoanaker, 800 feet of oil in the hole and rigging up to test the sand at 1,050 feet; Rowe Drilling Co.'s No. 1 Waggoner, rigging up to pump a broken sand showing oil at 1,850 feet; Bass and others' No. 6 Waggoner, drilling at 1,635 feet; Empire Gas & Fuel Co.'s No. 26 Burnett, drilling in shale showing some oil at 1,630 feet; Four States Oil Co.'s No. 7 Jennings, drilling at 980 feet; Fisher and others' No. 3-B Fisher, pulling casing and will drill deeper at 1,702 feet; Houston Oil Co.'s No. 14 Waggoner, drilling at 1,705 feet; Hartford Trust Co.'s No. 6-A Burnett, drilling with a machine at 215 feet; No. 12 Burnett, drilling in mud at 385 feet; Magnolia Petroleum Co.'s No. 31-A Waggoner, drilling at 845 feet; No. 5-B Waggoner, drilling in a sandy lime showing for some production at 1,675 feet; No. 78-B Burnett, drilling at 530 feet; No. 1-A Burnett, drilling in shale at 2,095 feet; Noel and others' No. 1 Waggoner, drilling at 965 feet; Perkins and others' No. 10 Burnett, bailing to clean out at 1,540 feet; Simms Oil Co.'s No. 14 Burnett, running 6⅝-inch casing on top of a broken sand at 1,665 feet; Texhoma Oil & Refining Co.'s No. 12-B Waggoner, drilling at 635 feet; No. 1-C Burnett, drilling at 510 feet; No. 26-A Waggoner, drilling in brown shale at 1,080 feet; Comac Oil Co.'s No. 1 Texhune, drilling in blue shale at 1,665 feet; Kentucky Oil Corp.'s No. 1 Davis, drilling in hard rock at 1,795 feet; Carter Bros.' No. 1 Love, drilling at 985 feet; Adams and others' No. 1 Waggoner, drilling at 955 feet; Robinson and others' No. 1 McCaleb, running 6⅝-inch casing at 2,105 feet; Noble Oil Co.'s No. 1 Stephens, rigged up and will start drilling in the near future at 1,575 feet.

Archer County

Completions—Chenault and others' No. 6-B Wilson, 78 bbls. at 1,590 feet; same company's No. 7-D Wilson, 40 bbls. at 1,595 feet; Ferguson and others' No. 1 Jackson, dry at 1,790 feet; Johnson and others' No. 1 Wilson, 560 bbls. at 1,595 feet; Morris and others' No. 1 Wilson, 25 bbls. at 1,600 feet; 66 Oil Co.'s No. 4-B Wilson, 310 bbls. at 1,595 feet; Sunshine State Oil & Refining Co.'s No. 12 Carter Brothers, 125 bbls. at 1,595 feet; same company's No. 13 Carter Brothers, 115 bbls. at 1,580 feet.

Drilling.—The Texas Co.'s No. 10 Carter Brothers, drilling in lime at 1,320 feet; Barclay and others' No. 2 Wilson, shut down on top of an oil sand at 1,522 feet; Bohler and others' No. 1 Wilson, drilling in brown shale at 1,375 feet; Boyd and others No. 1 Mrs. Carter, ratholing at 1,570 feet; Bridwell and others' No. 1 Wilson, drilling at 1,325 feet; Chenault and others' No. 5-C Wilson, drilling at 1,565 feet; Clayton and others' No. 2 Richardson, cemented casing at 1,362 feet; Dale and others' No. 7 Wilmot, rigging to pump and test an oil sand at 1,600 feet; Dilday and others' No. 1 Ferguson, drilling without any oil showing at 2,290 feet; Dixon and others' No. 1 White, shut down on top of an oil sand at 1,595 feet; Patewood and others' No. 1 Boone, fishing job at 2,400 feet; Gould and others' No. 2 White, drilling at 800 feet; Hardeyeste and others' No. 1 Parrish, hole full of oil and standardizing at 1,606 feet; Hudspeth and others' No. 2 Ambercrombie, drilling in brown shale at 805 feet; Jetter and others' No. 2 Wilson, drilling in brown shale at 480 feet; Johnson and others' No. 2 Wilson, drilling at 1,445 feet; No. 3 Wilson, drilling at 785 feet; Kentucky Oil Corp. No. 1 Wilson, drilling in blue shale at 1,555 feet; Lynch and others' No. 1 Birdwell, water trouble at 1,320 feet; Maer and others' No. 1 Wilson, standardizing on top of an oil sand at 1,594 feet; No. 2 Wilson, drilling at 605 feet; No. 7 Mrs. Carter, rigging to pump and test a sand at 1,380 feet; Morris and others' No. 2 Wilson, drilling at 955 feet; Moore and others' No. 1 Wilson, sand at 1,595 feet that tested salt water, pulling casing and will drill deeper; Murchison and others' No. 1 Wilson, drilling at 1,345 feet; No. 1-B Wilson, at 950 feet; Payne and others' No. 1 Parrish, 400 feet of oil in the hole from sand at 1,585 feet; Riner and others' No. 2 Wilson, bailing an oil sand at 1,615 feet; R. M. F. Oil Co.'s No. 1 Wilson, drilling at 1,455 feet; Sampley and others' No. 1 Miller, broken sand showing some oil at 1,340 feet; Shamrock Oil Co.'s No. 1-B Richardson, drilling in brown shale at 855 feet; 66 Oil Co.'s No. 6-B Wilson, drilling at 1,560 feet; Thomas and

(Continued on Page 89)

Viewing the Nation's Wealth

Uncle Sam on an inspection tour of American properties stops to examine an installation of *agitators*.

Which is Costlier —rust or paint?

The Dutch Boy Painter:
"Here's a big investment in metal that demands protection against rust. Frequent coatings of red-lead are absolutely necessary. Otherwise rapid corrosion would soon cause damage amounting to thousands of dollars."

THERE is no doubt which costs more. One might as well ask which is better—disease, or disease prevention?

Millions of dollars are invested in tank cars, pipe lines and refineries in the oil industry. This total investment easily becomes the victim of a disease called rust—unless it is protected by paint.

Red-lead paint has for many years been recognized as the most effective preventive against rust. It seals metal surfaces against the corrosive action of air and moisture. And its cost is so small compared with the cost of the metal it protects that frequent application should never be neglected.

Dutch Boy Red-Lead is pure red-lead. It is tough, durable, and elastic enough to expand and contract without cracking. It is easy to apply and has unusual spreading power. A given quantity covers a greater area than the same amount of most other paints.

You can get Dutch Boy Red-Lead in both paste and liquid form. The *liquid* comes as straight, untinted red-lead for first coats and is tinted to black, browns and greens for finishing coats. The untinted *paste* can be tinted to any dark color.

Write for Painting Helps No. 9.

We also make litharge of the correct physical character and chemical purity for dissolving in caustic soda solution to make the sodium plumbite used in these refinery agitators.

"Save the surface and you save all"—Dutch Boy

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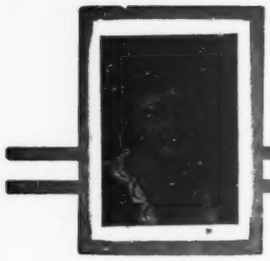
New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.; Chicago, 900 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 820 West Superior Ave.; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Ave.; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut St.; St. Louis, 722 Chestnut St.; San Fracisco, 485 California St.



North Louisiana-Arkansas

By M. L. Vaughn

Higgins O. & R. Co.'s No. A-3 Murphy, Union County, Smackover, 2,500 bbls., 5 per cent b. s.; Barnsdale & Foster's No. 4 J. Murphy, swabs 500; J. E. Crosbie's No. 2 Harrell, 300. Hunt and associates' No. 2 Solmson, Ouachita County, 350 bbls. Sales & Walker's No. 1 Bolinger, Bossier Parish, 400 to 900.

SHREVEPORT, La., Dec. 24.—Losses in seven out of the 12 producing areas comprising the North Louisiana-South Arkansas Field with gains in four (the Elm Grove area having produced exactly the same as the preceding month) resulted in a net loss of 1,815 bbls. as shown by average daily pipe line runs. The heaviest gain was in heavy Smackover production and was nearly 1,000 bbls., while almost a corresponding loss is shown in the Bellevue area. The distribution follows:

North Louisiana	
Caddo, light	8,490
Caddo, heavy	2,300
De Soto-Red River	5,560
Elm Grove	1,070
Haynesville	21,900
Homer	9,135
Bellevue	5,345
Total	53,800
South Arkansas	
El Dorado	10,180
Calion	6,915
Smackover, light	20,400
Smackover, heavy	79,655
Stephens	3,100
Total	120,250
Total both areas	174,050
Total last week	175,865
Decrease	1,815

Involving a consideration of $600,000 the Louisiana Oil Refining Corp. has executed a contract of sale through which its equipment will be increased to the extent of 341 tank cars of 8,000 gallons capacity and 207 cars of 10,000 gallons capacity. Notes covering payment are in denominations of $1,000 each and bear 6 per cent interest and mature at regular intervals of six months from January 1, 1924, until December 1, 1928, and the contract provides that the First Trust and Savings Bank shall become the trustee of the company.

Deepening Bossier Well

Arrangements are being made for deepening Sales and Walker's No. 1 Bolinger, Section 30-23-11, Bossier Parish, completed November 25, with an estimated production of 100,000,00 feet of dry gas at a depth of 2,690 feet, it being the belief of operators oil will be located at a greater depth of 15 to 20 feet.

The well is located 2½ miles northeast of the Lloyd Harris well in Webster Parish and 22 miles northeast of the Oil Fields Gas Co. No. 1 Merritt, in Section 14-21-10. Reports are in circulation to the effect that the Louisiana Oil Refining Corp. has begun construction of two large storage tanks for the reception of oil from this well which has been credited with a potential production variously estimated at from 400 to 900 bbls. daily although this has been seriously discounted by more authoritative and conservative experts with the suggestion that the short periods for which the well has been permitted to remain open do not furnish anything accurate in the way of an estimate of its capacity, suggesting that the oil is merely the accumulation of the drips. However, the construction of storage is a graphic demonstration of a certain amount of credence in its possibilites inasmuch as a contract entered into before it was completed provide that the Louisiana shall take the well over in the event of its being a commercial oil producer.

Scouts from Shreveport, Houston, Dallas and elsewhere are reported to have evinced considerable interest in the Delaware Corp.'s No. 1 Williams (Pat White and others) near Longview, Tex., which is credited with having had a showing of oil and gas at 2,170 feet.

A showing of oil and gas is also reported at 1,000 feet in the Kimbro & Miller test is the so-called Chandler wildcat territory, 12 miles southwest of Tyler, Tex.

Smackover Field

Union County Area—Completions—New production aggregating 3,600 bbls. was secured from six successful completions in the Union County area of the Smackover district during the past week. Two holes were failures. The best well was brought in by the Higgins Oil & Refining Co. and was No. A-3 Murphy, Section 14-16-15, flowing 2,500 bbls., 5 per cent b.s., from 1,995 feet.

Barnsdale and Foster are swabbing 500 bbls. from No. 4 J. Murphy, Section 17-16-15, completed at 2,125 feet.

J. E. Crosbie completed No. 1 Harrell, pumping 200 bbls. from 2,136 feet and he is swabbing 300 bbls. from No. 2 Harrell, completed at 2,065 feet, both in Section 17-16-15.

The Humble Oil & Refining Co. completed No. 2 Saxon, Section 32-15-16, pumping 75 bbls. from 2,270 feet. Hunt and others abandoned No. 1 Primm, Section 1-16-16, at 2,290 feet leaving casing in hole.

Nelson and others tested salt water and abandoned No. 1 Childs, Section 17-16-16, also at 2,290 feet.

The Standard of Louisiana brought in No. 1 Lengelback, Section 22-16-15, flowing 25 bbls. from 2,010 feet.

Drilling Operations

The summary of operations in this area shows very little change in activity from that in the previous report there being 105 active operations in progress throughout the area against 104 the preceding week. Four fewer wells are drilling, the decrease being counterbalanced by slight increases in the number of wells awaiting standard rig, new operations rigged up and one additional derrick.

The Arkansas Natural Gas Co. is drilling at 1,550 feet in No. 6 Cullens, Section 4-19-15.

Bement and others have derrick up for No. 3 Murphy, Section 21-16-15. Berfet and others are waiting on 6-inch at 2,655 feet in No. 1 Snyder, Section 2-19-15. Bondurant and others are drilling at 1,375 feet in No. 1 Tuberville, Section 9-18-12. Browder and others have hole cleaned up and are waiting on 6-inch to set at 1,920 feet in No. 1 Burns, Section 17-16-15.

Clark & Melat have derrick up for No. 3 Wells, Section 15-16-15. The Constantin Oil & Refining Co. is drilling in gumbo at 2,100 feet in No. S-3 Hinson (formerly reported B-3), Section 7-18-15.

Estes and others are arranging to test 10 feet of sand at 2,260 feet in No. 1 McGraw, Section 1-16-17.

The Federal Petroleum Co. set 6⅝-inch at 1,925 feet in No. 2 and has started drilling No. 3 W. H. Murphy, Section 22-16-15. In Section 28-17-12 is drilling in gumbo at 3,180 feet in No. 2 Union Saw Mill.

Ganzell and others have started drilling No. 1 McGraw, Section 7-16-16. The Gulf Refining Co. is drilling in sand at 1,980 feet in No. 1 Clawson, Section 14-16-15. In Section 21-16-15 set surface 10-inch and has drilled to 1,000 feet in No. 1 Jameson. In Section 8-16-15 has derrick pattern on No. 4 G. E. Murphy; in Section 5-16-16 is arranging to test at 2,260 feet in No. 12 Lewis Werner and in Section 25-15-17 is drilling in gumbo at 2,150 fet in No. A-1 Lewis Werner.

Harrell and others are shut down at 2,430 feet in No. 1 Teele, Section 11-19-12, waiting on 6-inch to set. Haviland and others set 6⅝-inch at 1,940 feet in No. 1 Clawson, Section 23-16-15. The Higgins Oil & Refining Co. set surface 12½-inch in No. 3 Jameson, Section 21-16-15. The Houston Oil Co. has derrick up for No. 1 Ballard, Section 21-16-15. The Humble Oil & Refining Co. is waiting on standard rig at 1,970 feet in No. 2 B. Goodwin, Section 15-16-15; at 2,000 feet with 7 feet of sand in No. 3 E. G. Murphy, in the same section: is arranging to test 20 feet of sand at 1,925 feet in No. 4 E. G. Murphy, Section 14-16-15 and has rigged up No. 2 F. Murphy, Section 3-16-16. The Humphries Oil Co. is building derrick for No. 1 Hays, Section 21-16-15.

The National Gas & Petroleum Co. is reaming to bottom at 2,117 feet in No. 1 Murphy, Section 17-16-15 and is arrnaging to deepen No. 1 Houston, Section 12-16-16.

Other Development Work

Page and others are waiting for standard rig for No. 2 Alphin, Section 23-16-15 with 14 feet of sand and the hole full of oil at 1,995 feet and in the same section swabbed to liner after setting 6-inch at 1,935 feet with the hole filling up over night with oil from 2,010 feet in No. 1 Holmes. The Pure Oil Co. set surface 10-inch and has drilled to 850 feet in No. 3 Craig, Section 15-16-15. Pherris and others are rigging up to drill No. 1 Goodwin, Section 26-16-15.

The Quaker City Petroleum Co. is running core barrel at 2,090 feet in No. 1 Sloan, Section 14-17-15.

Sam Richardson and others bailed casing dry and have the hole waiting orders at 1,905 feet in No. 1 E. G. Murphy, Section 23-16-15. In the same section they have drilled plug in 6⅝-inch at 1,857 feet in No. 2. The Roxana Petroleum Co. is drilling in gumbo at 1,970 feet in No. 4 Wells, Section 15-16-15. Roy and others are waiting on casing at 1,935 fet in No. 1 Long, Section 28-16-14. Russell and others are repairing derrick with No. 1 Stevens, Section 7-17-14, at 1,995 feet where the casing parted pulling crown block in.

The Smackover Petroleum Co. is drilling in shale at 1,850 feet in No. 2 Murphy, Section 14-16-15. The Simms Oil Co. has removed derrick and abandoned location for No. 6 Cook, Section 16-16-15. The Standard of Louisiana is reaming for 3½-inch at 1,990 feet in No. 10 Alphin, Section 11-16-15, with 6 inches of sand. In Section 22-16-15 is rigging up to drill No. 2 Lingelback. The Steele Oil Co. is waiting on 4½-inch to set with packer at 2,305 feet in No. 1 Rhodes, Section 12-16-17. The Sun Co. tested 300 feet of oil at 1,962 feet in No. 4 Hays, Section 3-16-15 and is arranging to pull liner and deepen.

Tarver and others are waiting for standard rig at 2,260 feet in No. 1 Childs, Section 8-16-16. The Texas Co. is drilling at 1,850 feet in No. 2 Cook, Section 21-16-15.

Willroy and others are shut down repairing rig at 1,140 feet in No. 3 Murphy, Section 7-16-15. Woodley and others are driling in pyrites at 2,570 feet in No. 2 Townsend, Section 6-18-14. Worthen & Orr have derrick up for N 1 Saxon, Section 32-15-16.

Ouachita County Completions

Four producers were completed in the light oil territory of this district last week. Hunt and associates brought in No. 2 Solmson, Section 30-15-16, flowing 350 bbls. through 6-inch tubing at 2,280 feet. Lanier and others completed No. 1 Murphy, Section 30-15-16, flowing 200 bbls. at 2,280 feet.

J. D. Reynolds completed No. 1 Smith, Section 25-15-17, flowing 50 bbls. at 2,300 feet. Snowden & McSweeney completed No. 2 Taylor, Section 29-15-16, flowing 200 bbls. through 2½-inch tubing at 2,290 feet.

Drilling Operations

A summary of operations last week shows 8 wells waiting on standard rig, 10 temporarily abandoned, 50 drilled, 10 rigging up, 25 derricks and 2 locations. Most of the drilling is located on the western edge of the field and a few new wells are noticed each week. Burch-Walker are bailing to test No. 4 Lagrone at 2,302 feet, Section 25-15-17. Barton trustee have rig up on No. 6 Hughes, an old abandoned derrick in Section 28-15-16. The El Dorado Union Oil Co. set 10-inch casing and drilled to 400 feet in No. 3 Shirey, Section 30-15-16 and is waiting on standard rig at 2,280 feet for No. 2 Smith, Section 36-15-17.

Giles and associates set 10-inch casing at 60 feet in No. 3 Watts, Section 30-15-16. The Gulf Refining Co. set 10-inch casing at 285 feet in No. 4 Fincher, Section 28-15-16; setting 6-inch casing at 2,220 feet in No. 1 Meek, Section 19-15-16; set 6-inch casing at 2,205 feet in No. 12 Patton, Section 32-15-16; derrick pattern on location for No. 2 Stringfellow, Section 29-15-16 and for No. A-4 Umsted, Section 33-15-16.

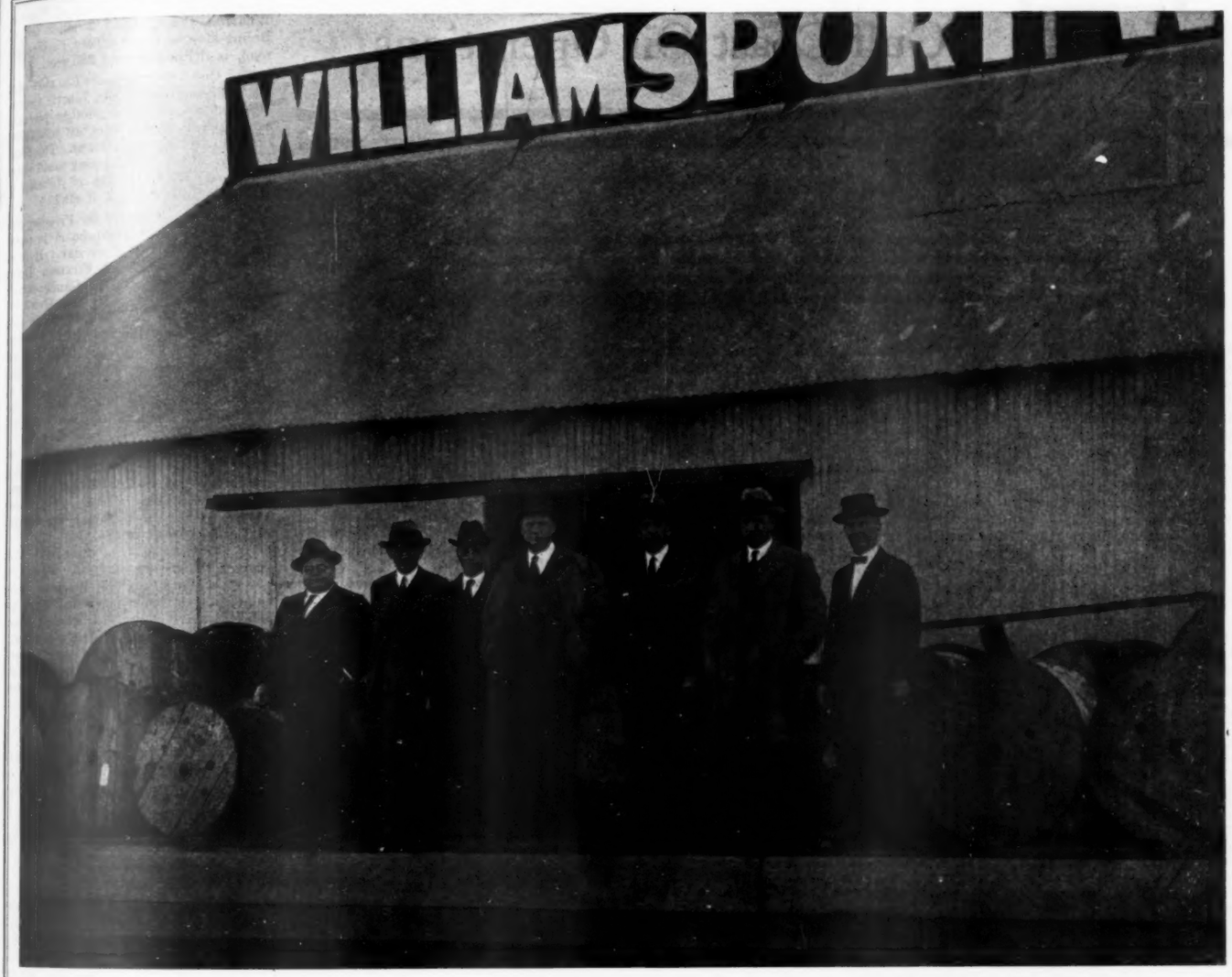
E. K. Hamilton set 8-inch casing at 1,880 feet in No. 1 Patton, Section 31-15-16. The Houston Oil Co. has derrick up for No. 2 Patton, Section 31-15-16. Hunt and others has rig up for No. 3 Solmson, Section 30-15-16. Johnson and associates are bailing to test No. 1 McElroy at 2,285 feet in Section 29-15-16.

Keen & Woolf are bailing to test No. 3 Myer estate at 2,250 feet, Section 32-15-16. Klotx and Thomas set 10-inch casing and drilled to 1,890 feet in No. 1 Peace, Section 26-15-17. Lanier and others have derrick up for No. 2 Shirey, Section 30-15-16. Lewis and Clark set 12½-inch casing and drilled to 350 feet in No. 4 Berry, Section 24-15-17.

The Magnolia Petroleum Co.'s Nos. 2 and 3 Patton are standing full of oil at 2,250 feet, setting packer, Section 32-15-16. They have derrick pattern on location for No. 4; set 6⅝-inch casing at 2,205 feet in No. 3 Smith and building derrick for No. 4, Section 31-15-16. The Majestic Smackover Oil Co. is drilling at 40 feet in No. 2 McElroy, Section 29-15-16. W. J. Mangus has derrick pattern up for No. 1 Fee, Section 24-15-17. Newton and others have rig up for No. 2 Cunningham, Section 25-15-16.

The Penguin Oil Co. set 10-inch casing and drilled to 1,300 feet in No. 2 Hardin, Section 27-15-16. The Roxana Petroleum Corp. set 5 3/16-inch casing at 2,245 feet in No. 1 Laney, Section 31-15-15. The Simms Oil Co. set 6-inch casing at 1,935 feet in No. 6 Hildebrand,

(Continued on Page 95)



AT BRISTOW

the Williamsport Wire Rope Company is represented by one of its own staff members, G. H. Musgrave, and by the American Tool & Supply Company, well known throughout the Bristow district. Our Bristow warehouse is shown above.

The men in the photograph are, left to right, Louis Loeffler, secretary and treasurer American Tool & Supply Company; C. L. Freeland, vice president; G. H. Musgrave, Williamsport representative; Watt Campbell, vice president American Tool & Supply Company; Thomas A. Barry, general manager; M. S. Hughes, president; George MacMillan, a director.

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Gulf Coast Oil Operations

By P. L. McGreal

Sun Oil Co.'s southeast extension of Orange Pool center of new activity. Transfer of properties in Markham and Humble Pools. Freeport Sulphur Co.'s No. 11 Dannebaum, Brazoria, 100-bbl. pumper. Edgerly Pet. Co. No. 1 Vincent, Vinton, 300. Grubstake reports 2,000 bbls. daily and 300 well program.

HOUSTON, Tex., Dec. 24.—Continued heavy rains and bad roads have combined to curtail operations in the Coastal Plains region and the light gravity fields to the southwest. Few wells have been completed and the daily average production continues to decline a little each week.

The estimated daily average gross output of the Coastal Pools and the light gravity fields, exclusive of Luling and the new Callahan district in McMullen County, is placed at 91,835 bbls. against an estimate of 29,795 bbls. last week. This is a decrease of 960 bbls. The estimate for the Gulf Coast alone is 85,435 bbls., a loss of 895 bbls. for the week. The estimate for the Luling Field is 8,550 bbls. and for the Callahan Field 2,000 bbls.

The gross is divided as follows:

District—	Bbls.
Batson	1,140
Blue Ridge	590
Barber Hill	320
Dayton	60
Damon Mound	2,245
Edgerly	380
Goose Creek	13,750
Humble	5,425
Hull	17,850
Jennings	700
Markham	100
Orange	15,100
Pierce Junction	815
Spindletop	850
Saratoga	1,785
Sour Lake	4,750
Somerset and Piedras Pintas	2,780
Vinton	5,750
Welsh and Anse La Bute	75
West Columbia	13,750
Miscellaneous (Milam County, Laredo district and places in the Coastal region)	3,620
Total	91,835

The Orange Pool Extension

The southeast extension of the Orange Pool, made by the Sun Oil Co. late last month when it brought in No. 2 Brown, at around 4,670 feet, with screen set in over 100 feet of broken formation, is the only spot in the Coastal region where new work is starting to any extent. The Brown well is about three-quarters of a mile from the old production. The Sun Oil Co. is now rigging Nos. 3 and 4 Brown, the former west of the well and the latter east. The Brownie Babbittee Oil Co. is rigging No. 1 Brown, an offset north. The Rycade Oil Co. is starting Nos. 3 and 4-C State land on Cow Bayou banks to the west and the Gulf Production Co.'s No. 13 Hager fee on the east side of the bayou is drilling below 4,100 feet with No. 14 at 3,900 feet. It is a marshy country and plank roads must be laid to get in material on the locations. In fact, the whole Orange Pool is on low ground and much difficulty is experienced when it rains.

In addition to the foregoing tests and rigs, the Rycade Oil Co.'s No. 3-A State land is showing some oil and gas at 4,775 feet. On the north side of the pool the Mutual Oil Co.'s No. 6 Chesson is bailing after being worked over at 4,150 feet. The Gulf Production Co.'s No. 1 Herman is rigging. No. 1-A Winifree is drilling deeper. No. 3 Peveito is deepening at 4,110 feet and No. 5 drilling at 1,565 feet, both seeking the same sand found in the Sun Oil Co.'s No. 2 Brown. The Gulf Co. also is working over No. 8-A Winifree and No. 4 Chesson and drilling No. 6-A Kishi-Lang on the north west side of the pool at 2,125 feet. The Humble Oil & Refining Co. is deepening No. 18-B Chesson at 4,010 feet; No. 20 at 4,200 feet and No. 8 Winifree at 4,545 feet. All are seeking the deeper sands developed by the Sun Oil Co. The Orange Petroleum Co.'s No. 5 Chesson is drilling at 3,610 feet and No. 3 Berwick is fishing at 3,425 fet. The Brownie Babbitte Oil Co. is deepening No. 6 McLain. The Sinclair Oil & Gas Co. is sidetracking No. 6 Granger at 2,200 feet. The Supreme Oil Co.'s No. 1 Jackson is also sidetracking at 3,500 feet. The old hole was lost. On the northeast side, the Sun Oil Co.'s No. 1 Kato is drilling below 3,725 feet and the American National Oil Co.'s No. 1 Winifree, 1 mile northeast of production, is drilling around 3,800 feet.

More Rigs in Hull Pool

A few more rigs have been started in the Hull Pool. The Gulf Production Co. is working over No. 9 Phoenix and No. 4 Thomas. Its No. 10 Phoenix is a pumper at 2,535 feet after being worked over. These are on the southeast side of the dome. On the east side, the Republic Production Co.'s No. 72 Dolbear is going on the beam at 2,500 feet. Nos. 26 and 43 Dolbear are working over. Nos. 74, 75 and 76 are rigging. On the south side, the Sun Oil Co.'s No. 9 Carr is around 2,200 feet and on the southwest side, The Texas and Vacuum Oil Co.'s joint No. 1 Hannah is sidetracking at 2,870 feet. On the west side, the Gulf Production Co.'s No. 12 Hannah fee is below 350 feet.

On the northwest side, the Mecom Oil Co.'s No. 3 Mecom got saltwater at 3,800 feet after being drilled deeper. The Gulf Production Co.'s No. 5 Harrison fee is drilling at 3,100 feet. The Monarch Oil & Refining Co.'s No. 2 Miller is below 3,900 feet and No. 3 Miller around 3,567 feet. The Houston Production Co.'s No. 7 Taylor is at 2,610 feet. The Humble Oil & Refining Co.'s No. 2 Taylor is at 1,876 feet and No. 1 Sterling at 1,435 feet. The Empire Gas and Fuel Co.'s No. 3 Lynd is rigging, as is the Yount-Lee Oil Co.'s No. 5 Taylor, with No. 4 Taylor drilling below 2,819 feet and No. 8 Merchant on the north side drilling around 2,998 feet. The Hull Pool is the only one in the Coastal region where production has been found on all four sides. Usually the productive areas are on two sides only.

The J. R. Copeland Oil Co.'s No. 1 Spillman Island, across the bay from Goose Creek, bailed saltwater at 4,675 feet and was abandoned. Work on that test has been in progress for about one year. Near the mouth of the creek from which the pool takes its name, the Gulf Production Co.'s No. 6 Chapman-Bryan is drilling deper at 4,375 feet. Its No. 2 Hirsch on State land in the bay is below 2,500 feet and No. 28 Beaumont, another bay shore test, is below 1,435 feet. No. 3-A Galliard is deepening and No. 8 Paddock is drilling at 2,235 feet. On the east side, the Humble Oil & Refining Co.'s No. 53 Smith is below 2,545 feet. No. 10 Tabb is around 3,565 feet. No. 26 Peninsula is rigging to deepen and a location for No. 1 has been made on Hog Island in the bay. The Gulf Coast and Crown joint No. 31 Galliard is sidetracking at 2,250 feet.

In Other Pools

At West Columbia, the Sun Oil Co. abandoned No. 2 Robertson at 3,050 feet after working it over without success. The Texas Co.'s No. 53 Hogg, another workover, is bailing at 2,700 feet. The Arax Oil Co.'s No. 2 Williamson is working over.

The Texas Co. has abandoned about 40 wells in that pool is now trying to salvage some of the casing in them. The other companies are making no effort to revive production and the district is deserted except for the lease workers and pipe line men.

The Texas Co. sold its production and leases in the Markham Pool to the Powers Production Co., capitalized at $30,000. The production averages 30 bbls. per day. The Rycade Oil Co.'s No. 1 Myers in that pool is drilling below 3,230 feet and No. 2 Hudson is around 2,500 feet. Schulte and others' No. 1 Newman on the west side is drilling below 3,845 feet.

The Humble Pool is another district where producing properties have changed hands recently. John Martin and associates are working over wells on the 23-acre lease taken over from the Gulf Coast Oil Co. and reviving the output. The Inca Oil Co. is also working over old wells on a recently acquired old lease. The Sun Oil Co., which specializes in the green crude of the Humble Pool, is extending its gathering lines and connecting with these recently acquired leases on which worked over wells are located.

In the Batson Pool, the Ada Bell Oil Co.'s No. 64 Parafine is a salt water hole at 1,250 feet. The Deutser Oil Co.'s No. 1 Hooks is rigging. The Paggi Bros. Oil Co.'s No. 3 Louis in the Saratoga Pool is drilling at 1,465 feet and the Rio Bravo Oil Co.'s No. 83-B at 1,435 feet. In the Spindletop Pool, Wilson and Broach's No. 3 McFadden is a 15-bbl. pumper at 860 feet. The deep test of the Rycade Oil Co. off the hill is drilling at 3,735 feet.

In the Blue Ridge Pool, the Mutual Oil Co.'s No. 1 Weems (Bute) is drilling below 3,345 feet and The Texas Co.'s No. 11 Robinson is around 1,623 feet. The Sun Oil Co.'s No. 1 Ritter at Pierce Junction is still idle waiting for cement to set. The Weems and Robinson tests at Blue Ridge are on the west side of the dome and farther out than any previous tests. The Union Sulphur Co. is drilling a test at Barber Hill in Chambers County. W. H. Kilgore, an employe of the company, fell from a derrick there and was instantly killed.

At Big Creek

The Gulf Production Co. has two rigs running at Big Creek, a semi-pool, in Fort Bend County, prospecting for sulphur deposits and Rich and associates are deepening No. 1 Ahlers there. The production has dwindled to 10 or 15 bbls. per day. The Gulf Co.'s No. 2 Trustee at Boling Dome, a recently opened saline elevation, 12 miles southeast of Wharton, Wharton County, and 2 miles east of Boling stop on the Southern Pacific Railroad, is drilling around 385 feet.

The Quick Development Co. abandoned No. 1 Peeler, near Nome, Liberty County, at 3,100 feet. It is another presumed saline dome. A previous test was drilled to 4,200 feet and abandoned. The South Liberty Oil Co. is still trying to set screen in No. 1 Wilson, south of Liberty, at 3,140 feet to test 9 feet of sand.

In Brazoria County, the Freeport Sulphur Co.'s No. 11 Dannebaum is pumping around 100 bbls. per day. It is on the northeast side of Stratton Dome. Same company's No. 12 Dannebaum is drilling below 1,980 feet. The Quick Development Co.'s No. 1 Boggs is in rock at 3,500 feet and the Fairchild Petroleum Co.'s No. 1 Boggs is shut down at 4,500 feet. The Freeport Sulphur Co. is getting about 600 tons of sulphur per day at Hoskins Mound in that county, a sulphur deposit opened by The Texas Co. and worked by the Freeport Sulphur Co. on a royalty basis. The output had declined to less than 100 tons per day, caused by crevices into which the superheated steam disappeared. This trouble has been overcome by pumping chopped hay into the crevices.

At Hockley Dome in the northwestern part of Harris County, the Texas Exploration Co.'s No. 15 Warren on the north side of the dome is drilling below 1,870 feet and No. 16 at 345 feet. Tests drilling at Big Hill in Jefferson County and at High Island in Galveston County, both partially defined saline domes, are shut down on account of weather conditions.

South Louisiana

The Edgerly Petroleum Co.'s No. 1 Vincent in the Vinton Pool is a 300-bbl. well at 2,450 feet. A derrick is up for No. 2. The Gulf Coast Oil Co.'s No. 5 Vincent is pumping 20 bbls. at 1,910 feet. The Edgerly Petroleum Co.'s No. 1 Tillery is drilling around 3,500 feet. The Seiss Co. is rigging No. 8 Green.

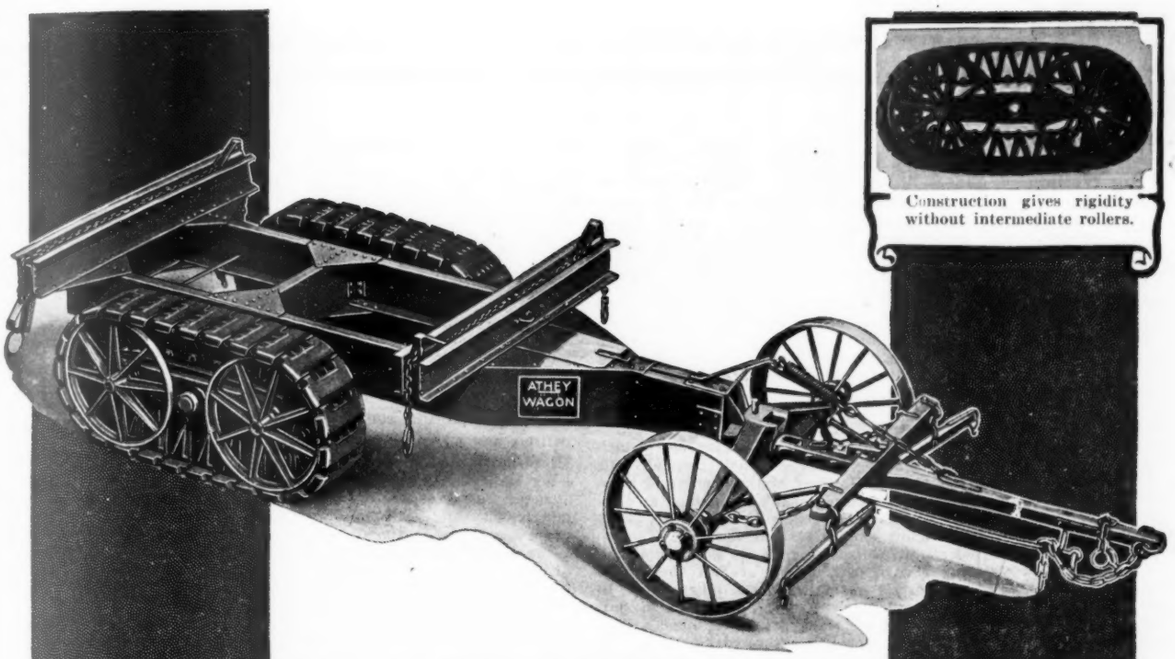
According to William Stephenson of San Antonio, manager of the Grubstake Investment Co., which opened the Grubstake Field near Callahan in McMullen County, that district has a daily production of approximately 2,000 bbls. per day from eight wells. Mr. Stephenson lists the production as follows: Grubstake Investment Co., No. 1 Stitz, 500 bbls.; San Balt Petroleum Co.'s No. 1 Stitz, 200 bbls.; Three Rivers Oil Co. No. 1 Stitz, 125 bbls. Mr. Stephenson says this well will make 500 bbls. per day. The Three Rivers Oil Co.'s No. 2 Callahan, 440 bbls.; Frio Oil Co.'s No. 1 Callahan, 100 bbls.; same company's No. 1 Cox 75 bbls.; South Texas Co.'s No. 1 Cox, 300 bbls.; South Texas Co.'s No. 2 Cox, 350 bbls. The last five are pumping.

The company has completed 11 miles of pipe line from the field to Three Rivers in Live Oak County, on the San Antonio, Uvalde and Aransas Railroad, where there is a loading rack and daily shipments are being made to the La Porte Refining Co. on the Houston ship channel and other buyers. The price is $1.40 per bbl.

The Bowers Leasing Co. has a gasser in No. 1 Lark, showing oil. It offsets the Grubstake Investment Co.'s No. 1 Lark, also a gasser spraying some oil. Higdon and Hutson's No. 1 Lark is on the sand and No. 2 Lark is plugging back to the sand at 750 feet. The sands are shallow, found at an average depth of 750 feet and the wells are rotary drilled. The Humphrey interests are rigging No. 1 Shriner ranch, McMullen County, 30 miles southwest of Three Rivers. Three shallow and one deep test will be drilled.

A report from San Antonio says the Grubstake Co. has closed a deal with L. E. Hill, of Chicago, whereby the latter and his associates will drill 300 wells

(Continued on Page 94)



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IT BRIDGES THE SOFT SPOTS

Wyoming Field Operations

By F. B. Taylor

Big Wellington gasser finally shut in. Oil developments expected. Salt Creek estimated by geologist producing territory for 25 years, 10 years' oil in Wall Creek sands with nine elsewhere productive sands below. Midwest Co. opening new structure on the Colorado-Wyoming border. Montana production.

CASPER, Wyo., Dec. 22.—The big gasser at Wellington, Colo., has at last been shut in. The crew placed a large amount of concrete around the top of the hole and as soon as this set a successful effort was made to close the valves and shut in the well.

A little excitement was created in Denver oil circles by the discovery of an oil seep in a vacant lot near the tracks of the Denver & Rio Grande Railway. The oil was reported to be a crude seep but further examination disclosed that the oil had been refined as there were definite traces of alkali and acid that could be had only in the refining process. It is believed that the oil is coming from a leak in some filling station storage tank and may be some distance away as there is a gravel bed nearby which extends for miles from the seepage point. The big gas well at Wellington has stirred up so much excitement regarding oil and gas strikes that this seep created almost as much excitement for a time as a real well.

The Fort Collins Royalties Co. had been organized to deal in royalty holdings in Colorado and especially in the district of the gas well and the National Petroleum Fields has been incorporated to operate on a wildcat structure where the firm has taken over about 6,000 acres of leases.

Closing for Winter

The Mutual Oil Co.'s gasoline plant in the Rock River Field in Albany County, has been closed for the winter due to low quotations on casinghead gasoline in the field. The Mutual will start up the plant as soon as the market for raw casinghead gasoline reaches a point where the firm considers it will be profitable.

The Associated Oil Co. has closed down all work on its well drilling in the Baxter Basin Field in Carbon County. The hole is now at 3,283 feet and the crew expects to come back as soon as the winter is over and finish up. At present the Rock River Field is shut off from the outer world except by horse travel and sleds as the drifts cannot be negotiated with autos. The Midwest well is now the only active well in the field. It is located on Section 11-17-104 and the crew is changing from steam to gas for power.

Estimating Salt Creek

Two meetings of considerable interest to the oil fraternity were held in Casper this week. At the regular weekly meeting of the Casper Chamber of Commerce, Petroleum Engineer E. L. Estabrook of the Midwest Refining Co. went into the history of the Salt Creek Field and described in minute detail the deposition of oil in that region and then demonstrated that Salt Creek can be relied upon for many years to come, as a premier producer of petroleum of high grade. Mr. Estabrook has made a study of the Salt Creek Field over a period of several years with data from all sources to supplement his own personal surveys.

In his talk, Mr. Estabrook stated that the Salt Creek Field was certain to be a producing oil field for at least 25 years unless some great change in the formation which shows no indication on the surface, would mitigate against this time limit. Such a condition is thought hardly probable. It will require, at the very least, 10 years more to take what oil is in sight, as it were in the first and second Wall Creek sands in the Salt Creek Field.

Below the first and second Wall Creeks lie nine other sands productive in other fields in Wyoming and which should be found productive at Salt Creek. However, the production of these lower sands cannot be estimated at present with any degree of satisfaction as we know too little about them.

In commenting on the probable activities in development at Salt Creek, Mr. Estabrook stated it has taken about 10 years to drill about 800 wells in Salt Creek and even a greater number than these would be required to obtain the crude from the sands in another 10 years.

Mr. Estabrook took a slap at the would-be geologists who claim to be able to point out places where oil can be found in virgin territory. He stated that "when a geologist says oil will be found in a certain place, he is either lying or does not know what he is talking about."

Petroleum Club Meeting

The other meeting was that of the Wyoming Petroleum Club. About 150 members were present. President J. C. Lindsey presided and the first speaker was Geologist J. M. Douglas of the Union Oil Co. who outlined the work to date on the Wellington structure in Colorado by his firm. Mr. Douglas stated that notwithstanding the Denver papers, no measurement of the big gasser had been made and therefore no certain knowledge of its capacity was had. He said the well had found the Frontier sand at 4,285 feet and the sand was 30 feet to the bottom. It was surmised from Mr. Douglas' remarks that the Union Oil Co. confidently expected the wastage of gas at this well would eventually bring it onto oil and that it was confidently expected by the firm an oil development would result in the near future. The Union has made locations for three more wells on this structure.

L. C. Kline, district manager of the Continental Supply Co. at Casper, was the next speaker and described the methods employed in the manufacture of steel for tubular goods for use in the oil fields. Much trouble is experienced here at times with casing and other pipe and the operators are prone to lay the fault at the door of the supply houses, but it was plainly shown in Mr. Kline's address that while some mistakes can be made at the steel mills, most of the trouble arises from wrong methods in the field and at the wells.

H. H. Wrightsman, district manager of the Williamsport Wire Rope Co., described the evolution of rope in the oil fields.

C. C. Van Vaulkenburg, engineer of the National Supply Co., stationed at Casper, spoke on the need of a close affiliation between the operator in the field and the supply house. The time has passed when the supply man could stay in his storeroom and expect to understand the many variations of field work that caused a demand for his wares and, without this understanding, the supply man would be unable to cooperate effectively with the operator in the matter of field supplies.

To Start on New Structure

The Midwest will start a well in an entirely new structure in the spring, the Hiawatha Dome on the Colorado-Wyoming border, with the main part of the structure in Sweetwater County, Wyoming. The Midwest's test will be located across the line in Colorado and it is expected the hole will have to be drilled quite deep as the reports are that the sands lie far below. No geological report has ever been made on this structure and the general public is wholly in ignorance concerning the possibilities. The terms of some of the tracts taken over by the Midwest call for a well to be started by May.

The Cat Creek and Sunburst Fields of Montana sent through the pipe lines of that State during October a total of 186,726 bbls., which represents the total production, practically, of Montana for October. Of this amount the Mutual Oil Co. at Cat Creek sent through its pipe line to Winnett the sum of 157,092 bbls. during October and in the Sunburst Field the Illinois Pipe Line Co. shipped a total of 29,634 bbls. out of the field, which is practically the total for that operation.

Salt Creek Wells

Some new statistics have come out regarding the future operation of the Salt Creek Field. The wells will be put down with an idea of drilling one well to each 20 acres. This will mean 32 wells to each square mile of field or section of land. Due to the recent strenuous drilling campaign at Salt Creek there are now completed in that field about 900 producing wells, including both the first and second Wall Creek sand and the shale wells. In prospect for the coming year there are 645 wells to be drilled before next fall.

Regarding a statement credited to Supervisor M. J. Foley recently in which he said that 600 wells would be drilled in the Salt Creek Field the coming year, the statement did not go into details enough as it appeared. Mr. Foley stated in his speech before the Wyoming Petroleum Club that if the operators of Salt Creek expected to keep up production, 600 wells would have to be drilled this coming year.

East Central Texas

By Staff Correspondent.

CORSICANA, Tex., Dec. 24.—The production of the Powell Field averaged 87,100 bbls. last week. Beginning the week with a production of 98,000 bbls. it fell to 95,000 bbls. on Monday, 89,000 bbls. on Tuesday; 85,000 bbls. on Wednesday; 80,000 bbls. on Thursday; 81,000 bbls. on Friday and 82,000 bbls. on Saturday.

There were a few completions but not a new derrick was started, and the field work as of Friday consisted of 29 wells actively drilling above the sand; 36 with pipe set or drilling in the sand; and 8 wells shut down. There are 88 derricks up, with three of these rigged up, a total of 81 operations in all.

The week's completions were as follows:

Humble Oil & Refining Co.'s 8-A Cerf, Smith survey, sand at 2,889 to 2,977 feet, 1,500 bbls.

Upchurch and others' No. 2 Fleming, Harris survey, sand at 2,842 to 2,945 feet, swabbing 380 bbls.

Garland Kent's No. 14 Fleming, Harris survey, abandoned at 563 feet.

Simms Oil Co.'s No. 1 Kellum, Greer survey, sand at 2,872 to 2,964 feet, 348 bbls.

Terrell Production Co.'s No. 1 Humphreys 10 acres, Smith survey, sand at 2,892-2,946 feet, pumping 200 bbls.

J. K. Hughes Oil Co.'s No. 3 Alexander, Smith survey, sand at 2,876 to 2,969 feet, 350 bbls.

Drilling Operations

The Seaport Petroleum Co. is below 3,190 feet in No. 2 Vinson, Hardin survey, over 3 miles northeast of the discovery well in the Powell Field.

Findley and others' No. 1 Keyser, Doom survey, less than 2 miles northeast of the discovery well is below 3,056 feet. Both these tests have been regarded improbable as producers for some time.

In the southeast end of the field in unproved territory, E. C. Meade and others are shut down at 3,000 feet in No. 1 Smith, Autry survey and The Texas Co. set 6⅝-inch pipe in its test on the Autry farm, Autry survey. Taylor and others are drilling below 2,565 feet in No. 1 Jackson on the Schultz survey, on a line with the producing zone but a mile and a half ahead of the most southeasterly producer.

In the Richland district McDonald and others were last reported rigging up standard tools at 2,948 feet in their No. 1 Dr. A. M. Brown, White survey, while Miller & Lewis were still shut down at 2,818 feet in No. 1 Swink, on the White survey.

The Ranger Vindicator Oil Co.'s wildcat on the Thornton farm, Hazard survey, Navarro County, is down 3,307 feet with nothing showing.

The monthly oil report for Navarro County will show a big slump in the number of wells completed, the initial production and the amount of new work being done in the field. It is likely that the oil wells will average less than 900 bbls. in initial production, whereas those of October averaged 2,703 bbls. and of November 3,378 bbls.

Operating Costs in Powell

A local statistician has worked up some interesting figures on the results of this year's big oil development in Navarro County. He has gone over the records at the court house and found that State and county taxes to be derived in Navarro this year from new oil properties will amount to approximately $300,000.

Taxable valuations in the county have increased from $28,000,000 to $53,000,000 over 1922.

The deep oil fields cover about 2,500 acres of land lying southeast of Corsicana, extending from Powell to Navarro. In this area no less than 600 standard sized derricks are located.

Prices paid for acreage to the landowners affected by the oil field development averages $500 an acre or a total of about $1,500,000. Up to this time 30,000,000 bbls. of oil have been taken from the area, one-eighth of which, $3,750,000 bbls. is royalty going to the

(Continued on Page 96)

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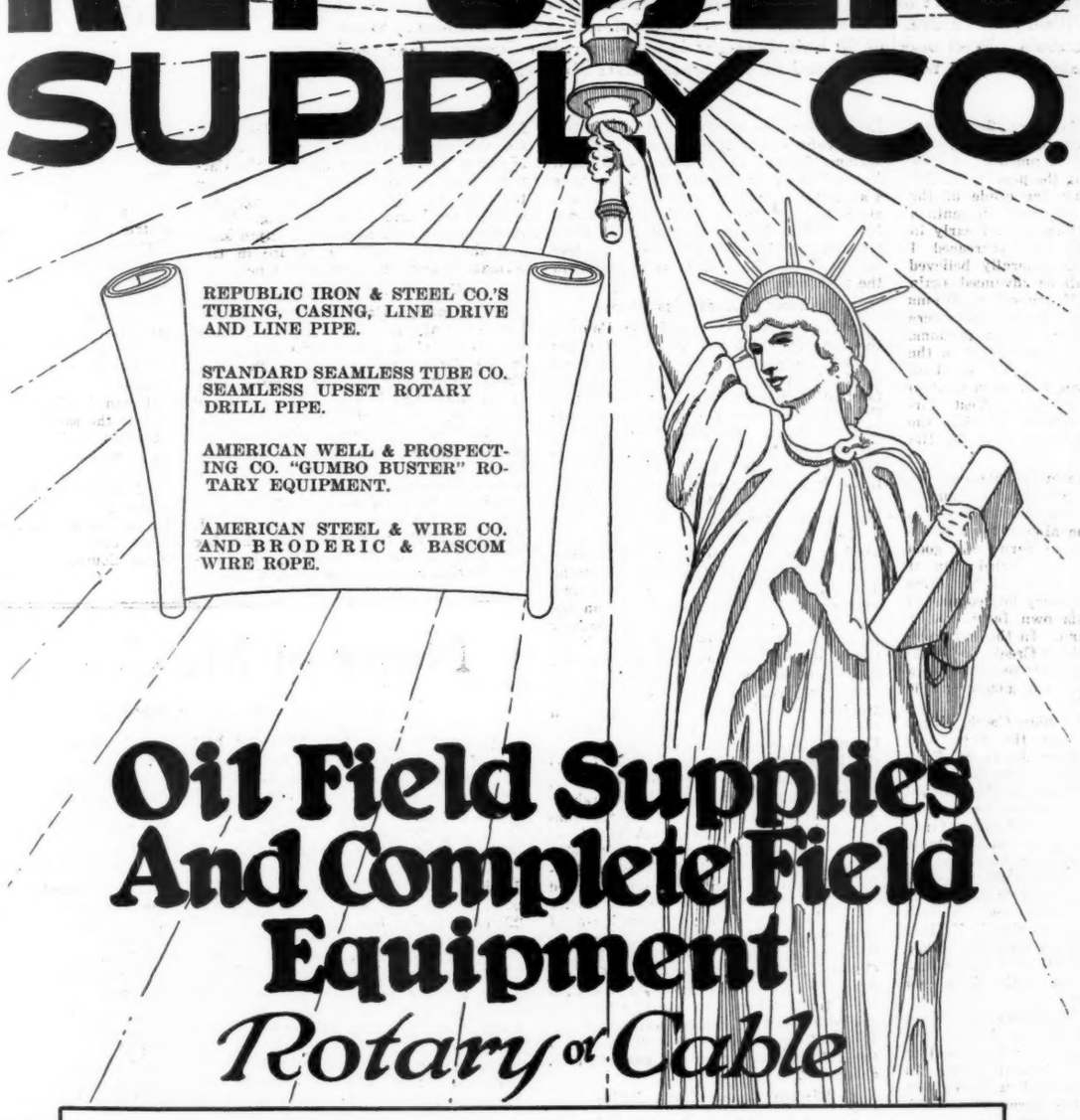

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Pennsylvania-West Virginia

By D. S. Wakenight

Eastern operators believe generally another crude advance will be announced within near future. Fourth sand gas well completed in Lewis County, West Virginia. Well making 50 bbls. brought in in Doddridge County. Gas well making 500,000 feet completed in corporate limits Rushville, Ohio.

PITTSBURGH, Pa., Dec. 24.—There was very little change in marketing conditions or field developments in the Eastern Fields during the past week. The credit balance market for crude of the Corning grade was advanced 15 cents a barrel last Friday morning and early in the week lubricants were increased 1 cent a gallon. It is generally believed the crude market will be advanced again in the near future if general conditions continue to improve. Light wells were very much in evidence in all sections. The only fair producer completed is the Imperial Oil & Gas Products' No. 3 on the W. A. Mason farm, located in Central district, Doddridge County, West Virginia. The well produced 50 bbls. the first 24 hours after drilled into the Big Injun sand.

Gilmer and Ritchie Completions

In DeKalb district, Gilmer County, the Hope Construction & Refining Co. has completed in the Maxon sand No. 4 on the J. J. Hardman farm and good for 10 bbls. a day. On Third Run of the Little Kanawha River, in the same district, James A. Tierney has completed a second test on his own farm. It is dry in the Gantz sand. In the same district, located on Sinking Creek, the Sinking Creek Oil & Gas Co.'s second test on the Eda Bush farm is a gasser in the Big Injun sand.

On the waters of Indian Creek, Grant district, Ritchie County, the Hope Natural Gas Co.'s No. 2 on the D. M. Phillips farm, is a gasser in the Big Injun sand. On Gillespie Run, the Penn Royal Oil Co. has a 10-bbl. pumper in the salt sand at No. 3 on the I. N. Jackson farm. Morris, Messer & Co.'s test on the David McIntyre farm is dry and abandoned. In Union district, the Ohio Fuel Oil Co.'s No. 5 on the Moses Spencer farm, is a gasser in the Big Injun sand. Robert Elder & Co.'s No. 3 on the J. E. Day farm, is a gasser in the same formation. In Murphy district, P. J. Davis has a gasser at a second test on the G. L. Goff farm.

On Laurel Creek, Union district, Wood County, the Sleppy Oil Co. has a light pumper in the second Cow Run sand at No. 15 on the U. S. Ullman farm. In the same district, Bennett & Earl's test on the B. F. Frazier farm is a 3-bbl. pumper in the Berea grit. In Walton district, Roane County, Godfrey L Cabot has a light gasser in the Big Injun sand on the C. C. Ferrell farm.

Gasser in Lewis County

In Collins Settlement district, Lewis County, the Roanoke Oil & Gas Co. completed a fourth sand gasser on the C. C. Duncan farm. In Grant district, Wetzel County, the Carnegie Natural Gas Co.'s test on the S. J. McIntyre farm, has filled up 300 feet with fluid from the Big Injun sand. In Clay district, the Pittsburgh & West Virginia Gas Co. has a Gordon sand gasser on the Dressa Sellers farm. In the same district, the Annex Oil Co.'s test on the Gertie Spragg farm is a gasser in the Big Injun sand. The Manufacturers' Light & Heat Co.'s' No. 5 on the A. M. and Emma Schenk farm is a gasser in the Maxon sand. In Liberty district, the Clifton Oil & Gas Co. has a Gordon sand gasser on the Burley Lindsey heirs' farm.

In Carroll district, Lincoln County, the Laurel Development Co. completed a Big Injun sand gasser at a test on the Lizzie Malone farm. In Courthouse district, Lewis County, H. H. Duncan & Co. have a show for a producer in the 30-foot sand at a test on the James E. McDonald farm. In Eagle district, Harrison County, the Hope Natural Gas Co.'s test on the V. B. Kyle farm is a gasser in the fifth sand.

Producer in Doddridge County

In Central district, Doddridge County, the Imperial Oil & Gas Products Co. has a 50-bbl. producer in the Big Injun sand at No. 3 on the W. A. Mason farm. In Southwest district, the Star Oil & Gas Co. has a salt sand gasser on the Brown-Trainer farm. In Paw Paw district, Marion County, the Owens Bottle & Machine Co.'s test on the French Williams farm, is a gasser in the same formation. In Clay district, Monongalia County, the Marshall Oil & Gas Co. has a show for a light pumper in the fifth sand at No. 4 on the D. J. Eddy farm. Eight miles west of Pine Grove, Greene district, Wetzel County, the Manufacturers' Light & Heat Co.'s No. 3, on the Evan Morgan farm, is a 10-bbl. pumper in the Big Injun sand. On Lick Fork, Grant district, Ritchie County, the W. T. Wyatt estate has completed in the Berea grit, No. 14 on the West Virginia tract, and good for 4 bbls. a day. On Sinking Creek, DeKalb district, Gilmer County, the South Penn Oil Co.'s test on the D. M. Bell farm, is a gasser in the salt sand, good for 1,000,000 feet a day. In the same district, the Pittsburgh & West Virginia Gas Co. has the rig completed for a test on the Frank Woodford farm. On Hardman Fork of Rowell's Run, Lee district, Calhoun County, Barton, Russell & Messer have commenced to drill a test on the Graham-Stuttler farm, located 1,000 feet southeast of production on the Robert Bell farm. In Section 24, Ward Township, Hocking County, the Sunday Creek Coal Co. has drilled No. 113 on the Sunday Creek Coal Co.'s tract 9 feet into the Clinton sand and developed a gas pressure good for 1,000,000 feet a day. It will be drilled through the sand after the gas has been exhausted.

Ritchie County Most Active

Ritchie County continues to have the most completions, nearly all gas wells. On Gillespie Run, Grant district, the South Penn Oil Co.'s test on the W. E. Mason farm, is a gasser in the salt sand. In the same district, the Arkansas Natural Gas Co.'s No. 4 on the Clyde Newbrough farm is a 3-bbl. pumper in the Keener sand. In the Goose Creek Pool, the Adams Oil Co. drilled its old Maxon sand gasser on the James Newbrough farm to the Squaw sand, and good for 5 bbls. a day. In Clay district, the Helen Oil & Gas Co.'s test on the Marsh Lantz farm, is a gasser in the Maxon sand. In Murphy district, the Hope Natural Gas Co.'s second test on the T. T. Goff farm is a gasser in the Big Injun sand. The same company has a gasser in the first salt sand at a test on the Roscoe Perrine farm. In Union district, the Star Oil & Gas Co. has a gasser in the Big Injun sand at No. 5 on the Spencer heirs' farm. In the same district, the South Penn Oil Co.'s second test on the E. M. Brown farm, is a gasser in the Big Injun sand On the head waters of Indian Creek, McElroy district, Tyler County, the Carnegie Natural Gas Co. drilled its test on the William Lyons farm, through the Gordon sand and found nothing. They then plugged back to the Big Injun sand and shot. It also is a failure in this formation and has been abandoned.

Gassers in Cabell County

On Charley Creek, Grant district, Cabell County, the Aetna Oil & Gas Co.'s test on the C. A. Davis farm is a gasser in the Berea grit. On Little Two-Mile Creek, the same company's test on the R. G. Bias farm is a gasser in the same formation. On Leading Creek, Sheridan district, Calhoun County, the Hope Construction & Refining Co. has a Big Injun sand gasser in the Big Injun sand at a second test on the S. Snyder farm. In Freeman's Creek district, Lewis County the Jones Oil Co.'s test on the W. M. Starcher farm, is a gasser in the Big Injun sand. On States Fork, Manningston district, Marion County, S. N. Elliott has a show for a 20-bbl. pumper at a test on the L. A. Orndoff farm. In the same district, J. J. Allen has drilled his test on the J. N. Rice farm to a total depth of 3,450 feet and found nothing except a light show in the 30-foot sand.

Drilling Operations

On Cain's Run, Reedy district, Roane County, the Heck Oil Co. has started to drill a test on the Simms heirs' farm. In Reedy district, Wirt County, Joseph Richardson has the rig completed for a test on the S. B. Young farm. On Worthington Creek, Union district, Wood County, M. W. Lark is drilling on the N. A. Ogdin farm. In Courthouse district, Lewis County, the South Penn Oil Co. has made a location on the Michael Tims farm. In Union district, Ritchie County, the Wright Oil Co. has a rig completed on the J. W. Goff farm. In Murphy district, the Central Oil & Gas Development Co. has a rig up on the E. B. McDonald farm. In the same district, McCall & Co. have a rig up on the J. W. Lowther farm. In the same district J. F. Deem & Co. are ready to start on the W. M. Deem farm. In Paw Paw district, Marion County, the Carnegie Natural Gas Co. is moving rig timbers to a location on the George Sine farm. In Greenbrier district, Doddridge County, Trainer & Davis have started to drill on the A. Davis farm. In Murphy district, Ritchie County, C. C. Haddox & Co. are rigging up on the L. S. Smith farm. In Union district, Wood County, Hinds Peevey is building a rig on the S. F. Alleman farm. U. J. Morgan & Co. are due in the sand on the H. C. Williamson farm in Union district, Tyler County. In Union district, Ritchie County, the Hope Natural Gas Co. has started to drill on the Azariah Bee farm. The Carnegie Natural Gas Co. is hauling rig timbers to a location on the Amos Burrows farm. In Central district, Doddridge County, Boyce & Dotson are drill-

(Continued on Page 92)

News of Mexican Fields

By George Blardone

TAMPICO, Mex., Dec. 17.—The best well of the month to be thus far recorded is Penn Mex Fuel Co.'s No. 22 Alamo, which came in three days ago at 2,096 feet, a big gusher, with a potential rating of at least 50,000 bbls. The well commenced as a big gasser, with the oil quickly following. The sub-sea level depth is 2,019 feet, as this Alamo sector is, comparatively, flat country. This No. 22 follows the line from No. 21, say south by east from the major Alamo Pool. No. 21, finally completed October 6, of the current year, at a sub-seal level depth of 2,087 feet, has been doing 10,000 bbls. right along; and has been Penn Mex's minstay, as the older pool had virtually gone to water. It will be noted that No. 22 is even shallower than No. 21; and this holds true of even the older pool, of which 21 and 22 can be called, possibly, extensions, for No. 2 Alamo, the well responsible for the major production of the older pool, (and with one exception), the shallowest well drilled there, had a sub-sea level depth of 2,083 feet. Wherefore, Penn Mex, a subsidiary of the South Penn Oil Co., can be said to be again a factor in South Fields production.

Two other South Fields completions to be recorded belong to Mexican Eagle Oil Co., Ltd., one of which, (No. 15 Potrero del Llano), may make a small well when tested, its completion depth being at a sub-sea level of 1,708 feet; while the other was a dry hole, at a sub-seal level depth of 1,596 feet, (No. 24 Zacamixtle, Lot 198 Amatlan.)

Panuco Completions

In the Panuco Field the best completion to be noted is Sol Oil Co.'s No. 3 Tanchisol, a federal zone well, which is rated 7,000 bbls. at the very shallow depth of 1,632 feet. This company now has a production rated at at least 10,000 bbls. a day. Up in Cacalilao, Rich Mex interests again scored, this time with Nos. 3 and 24, Lot 1, (4-B). The former is rated at 4,000 bbls. at 1,965 feet; and the latter should easily do 2,500 to 3,000 bbls. at 1,895 feet, getting its first oil as high up as 1,836 feet.

The remainder of the Panuco completions were characterized by either small producers, or failures. The list follows: In Cacalilao, La Corona Petroleum Co.'s No. 44, Lot 4, a duster at 2,180 feet; its No. 31, Lot 1, rated 110 bbls. at 2,202 feet. International Petroleum Co.'s No. 29, Lot 3,, rated 1,500 bbls. at 1,605 feet; not a bad well, the shallow depth considered. Mexican Gulf Oil Co.'s No. 35, Lot 1, Cacalilao, (4-C), completed at 2,300 feet, rated for 55 bbls., the oil from a stratum higher up. National Lines of Mexico, No. 6 Tanchicuin, (Federal zone), a 1,200-bbl. producer at 1,998 feet. Venable and others' No. 5-A, Lot 1, Cacalilao, (2-B), completed at 2,201 feet, rated 150 bbls. Transcontinental Petroleum Co., No. 54, Lot 4, a duster at 1,925 feet; and its No. 3 Paciencia, north of Cacalilao, also a duster at 2,535 feet.

South Fields

To revert to the South Fields a moment, International Petroleum Co.'s No. 2 San Miguel, which offset the heavy gravity well this company finished in July at 3,012 feet, rated possibly good for from 500 to 1,000 bbls., (never exploited), is a completion at 3,164 feet, salt water. Mexican Gulf Oil Co. has abandoned its No. 45 Toteco at 1,900 feet, for a dry hole, a big gas pocket exhausting itself. Peiper interests' No. 1, Lot 230, Amatlan, finished up an old hole left standing when "the deluge" oc-

(Continued on Page 91)

"HAS NO EQUAL IN THE TWO-CYCLE CLASS"

Says Mr. Harry J. Eaton of the J. P. Eaton Company

In order to save you many needless dollars experimenting and rectifying early errors we reproduce below Mr. Eaton's letter in its entirety believing you may be benefited by his experience.

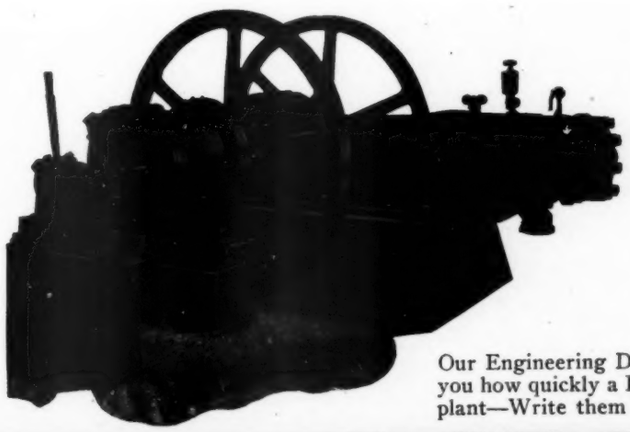
"In reply to your inquiry requesting us to express our opinion in regard to the practicability of the FRANKLIN VALVELESS ENGINE, will truthfully say that it has no equal in the Two Cycle Class.

"In regard to service will cite a case of ours for a 30 h. p. running straight time on a set of Gas Pumps since 1917. Last December this engine had the misfortune to have the Piston Rod become loose in the head and to make a satisfactory job we ordered a new Piston Rod and Cylinder Head and after getting things adjusted again we were very much surprised to find she still held her old perfect compression without reboring. With the exceptions of Magneto trouble this was our only expense and as the old girl has stood the test so far we anticipate that she will be on the job in the windup.

"We have two 60 h. p. and two 30 h. p. and again in the market and have our order placed for another 40 h. p. and should we need a dozen they would all be the FRANKLIN VALVELESS.

Very truly yours,
J. P. EATON COMPANY.
By Harry J. Eaton (signed)"

Letters like the above coupled with the fact that the FRANKLIN VALVELESS is daily serving thousands of owners just as satisfactorily is conclusive evidence of their superiority.



FRANKLIN VALVELESS GAS ENGINES

Our Engineering Department will be glad for the opportunity to show you how quickly a FRANKLIN VALVELESS can pay for itself in your plant—Write them today.

FRANKLIN VALVELESS ENGINE COMPANY

Franklin, Penna.

Distributed in Oklahoma, Kansas, Texas, Louisiana and Arkansas by ATLAS SUPPLY CO. and branches.
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West Kentucky-Tennessee

By Vern T. Whitney

Indian Pipe Line Co. purchases Indian Refining Co. contracts. Foster's No. 4 Dr. C. E. Francis, Warren County, estimated 40 bbls., proves entire lease. Three producers in Owensboro district. Treat has 25-bbl. well in Waller-Runner Pool. Kettle Creek alarmed by sinking earth. Tennessee wildcat.

BOWLING GREEN, Ky., Dec. 22.—Producers in western Kentucky have received notice from the Indian Pipe Line Co. that it has purchased the division orders and contracts of the Indian Refining Co. and hereafter will take oil formerly accepted by the refining company. It asks for new division orders in favor of the pipe line company and cancellation of all claims of the producers against the refining company.

Oil is to be bought on a new classification which shall be the price posted by the Indian Refining Co. on the respective dates when deliveries of oil not on contract are made. This classification shows oil testing 32 gravity as western Kentucky heavy. The initial price offered in a letter of the Indian Refining Co. under date of December 15 is $1.15 for the light and 95 cents for the heavy grade.

Since this letter was sent out by the Refining Co. there has been a raise of 15 cents per barrel on both Somerset grades which was met by the purchasing agencies. It is presumed that the Indian Refining Co. will likewise meet this advance in their quotations. Heretofore, western Kentucky crude has been classified by the purchasing agencies as Somerset medium. The price is posted at Oil City Pa. Other agencies advise that they expect to continue under the old classifications. Some of the independent purchasers are paying a premium above Somerset medium. The cancellation of the old 32-cent pipe line charge of the Indian Co., still in force on some of the contracts, will be the cause of much rejoicing on the part of operators and will undoubtedly result in increased drilling activity.

Those interested here look for a steady increase in development after the first of the year.

Recent developments, especially in the Owensboro Field, are attracting the attention of a good many of the larger producers throughout the country, and last week brought a number of them to investigate the reports from this city of the possibilities in the newly opened territories. Among those who were looking over the field were C. E. Onsel and M. P. Hanrahan of the Onsel-Hanrahan Oil Co. of Ohio; J. A. Patton and W. D. Dobbs, of the New Domain Oil Co., extensive operators in eastern Kentucky; F. G. Stevens and N. Garland, representing Makeever Brothers, of Boston, large independent producers; R. H. Dunbar, of the Atlantic Oil Producing Co.; S. M. Flannigan, of the Tex-Ken Oil Corp., operating in Kentucky and Oklahoma; Frank Smith, of Wichita, Kans.; Mr. Williams, of Rush, Pa.; and a number of others.

Week's Summary

A summary of the week's work shows a decrease of 39 bbls. in production, 7 more completions, 2 more producers, 1 les duster and 6 more abandoned holes, compared with last week's figures. The wells were distributed by counties as follows:

County—	Comp.	Wells	Prod.	Dry	Abd.
Warren	4	2	75	2	0
Allen	2	2	20	0	0
Barren	4	4	38	0	0
Metcalf	1	1	4	0	0
Owensboro	5	3	47	2	0
Sumner, Tenn.	6	0	0	0	6
Grundy, Tenn.	1	0	0	0	1
Total	23	12	184	4	7

Warren County Development

The Foster interests, of Dayton, Ohio, completed the best well of the week in Warren County, in their No. 4, on the Dr. C. E. Francis 400-acre tract in the Sandidge-Biddle-Francis district, northwest of Bowling Green. This well, after being treated to a 60-quart shot of nitro, immediately filled to within 100 feet of the top of the hole. When put on the jack it pumped 18 bbls. the first 40 minutes and is conservatively estimated at 40 bbls. flush. Sand was found from 515 to 542 feet, the bottom of the hole. This makes the fourth producing well on this property and, as it was drilled almost in the center of this large tract, it serves to prove the entire lease. Nos. 1, 2, and 3 are pumping about 3 bbls. each. No. 5 is being rigged up to drill about 800 feet east of No. 4.

Mr. Foster and his associates are also drilling a well on the Wood farm, about 1 mile south of the Francis property, expected to be drilled in within the next few days. If a producer, it will show quite a nice extension for this district. So far, cutting have been the same in this test as on the Francis.

Two disappointments were registered in the county during the week, when the wildcat test on the Elkins farm, being developed by Cunningham and associates came in on salt water at 1,567 feet. In a shallow sand from 870 to 880 feet a small show was found. The shale was encountered at from 1,315 to 1,433 feet. This test was located about 17 miles northwest of Bowling Green, near Riverside, and was 5 miles from the nearest production, which is on the Sandidge lease. A mile and a half northeast of the Sandidge lease, near Greencastle, G. W. Pyles' No. 1 on the Watkins farm, was declared dry at 1,231 feet and plugged. Shale was found from 965 to 1,070 feet. This well had nine distinct showings of oil above the shale, none of which, however, showed commercially.

In the Waller-Runner Pool, northeast of Bowling Green, E. M. Treat & Co. scored another success in No. 16 on the S. Smith farm. On test it pumped 35 bbls. Shale was found from 852 to 930 feet and the sand from 1,026 to 1,043 feet, the bottom of the hole. No. 17 on this tract, is drilling at 230 feet, and No. 19 will be started during the coming week.

Owensboro District

Five completions for the week in the Ohio-Hancock-Daviess County oil fields, three of them producers, increasing the production of the field by 47 bbls., show a steady advancement of oil production in the Owensboro territory.

The three producing wells which claimed the attention of the fraternity did not advance the territory to a great extent, but one of the number furnished conclusive proof that little importance can be attached to dry holes. The Kentucky Oil Co., drilling on the Widow Chambers farm west of Herbert school house, has what is rated as a 20-bbl. pumper. This well was drilled in a direct line midway between the company's No. 5 Amanda Stewart, which was dry, and a nonproducer on the Virgil Miller farm, south. The latter, which was drilled a little north and east of the old Panther Church burying ground, produced a lot of gas in the upper sand, but the lower formations were barren. The same condition prevailed in the Stewart well, except that it showed little gas, but the formation ran regular and the sand in which the oil should have been found was very hard, with slight porosity. The completion of the Chambers well proves the theory advanced by a number of oil men that the oil bearing sands become denser in places and the drilling of a nonproductive well in which these conditions exist has little bearing on the general locality.

In addition to the Chambers well, C. E. Daugherty & Co. have a 12-bbl. producer in the Barlow sand at 728 feet in No. 1 venture on the Charles Payne farm, east of Herbert school house. This well showed 16 feet of pay in the Barlow sand, and is said to be making an excellent record for itself.

To the southeast, near Aetnaville, the Wood Oil Co. got a duster in its No. 1 Ellen Howard. This well finished around 740 feet with the regular formations, but the sand showed little oil, owing to its hard, flinty condition. South of Whitesville, the McCombs Producing & Refining Co., drilling on the Carter farm, near Narrows, has a dry hole at 2,770 feet. This is the first deep well drilled in this section and was carried 250 feet below the black shale.

The coming week will furnish some activity in the field and a number of completions should be recorded. The Panther Creek Oil Co., in its No. 4 R. Miller, was on top of the sand Thursday night. The Wood Oil Co. moved a rig onto the Griffith farm, near Reynolds Station, and is now spudding its first test.

In the Hurricane district, the Newton Oil Co. has a fishing job on its No. 1 Bickett and it is feared the hole may be lost. The tools were lost at 690 feet, just after going into the Jackson sand which, along with an abundance of salt water, was showing considerable oil. C. E. Daugherty & Co. are rigging up No. 3 Virgil Miller at Herbert school house, and the Kentucky Oil Co. is moving a rig to the flowers farm in the same vicinity.

White & Nicklin, who recently finished a 15-bbl. pumper on the Burdett farm, adjoining the R. Miller lease, are spudding in their No. 2. Randolph & Stevens are moving a rig from Maceo to the Abe Howe farm, adjoining the Payne property, and should be on the location Monday. In the Pellville section, the Leeper Oil Co. is drilling in its No. 7 Amanda Stewart 55 acres. This well is an offset to the Bailey producer drilled in a week ago. The Pellville Oil Co., which has a 5-bbl. well on the Brown farm, north of Pellville, has moved a rig to the second location and will spud in the early part of the coming week.

Barren County Wells

Fred Moore, of Bowling Green, Ohio, scored another one in his No. 1 on the Howard farm, 2 miles west of Glasgow, on the upper Bowling Green road, in Barren County. It was drilled to a total depth of 471 feet, 50 feet below the shale and is making 15 bbls. naturally. The well was located 407 feet south of No. 1 Travis, which is also making 15 bbls. naturally. In the same vicinity, the Houchins Leasehold Co. finished its No. 2 Ziegler for 10 bbls. on jack at 604 feet, 185 feet below the shale. It was located 500 feet east of No. 1, which is making 6 bbls.

On the Widow Russell farm, 1 mile west of Glasgow, Norris, Warder & Samson got a 6-bbl. well in their No. 1 at 462 feet, after shooting 10 feet of sand with 30 quarts. No. 2 is spudding. No. 1 was an offset to the discovery well on the Pitcock farm.

In the Button Pool, on the Glasgow-Scottsville Pike, Lewis J. Emery, Jr., & Sons' No. 8 Harston is making 6 bbls. This property was purchased from the Carter Oil Co.

In Metcalf County, the Knob Lick Development Co.'s No. 3 on the Bell farm, is making 4 bbls. on power at 296 feet. This makes the second producer on this property in the sand below the shale. No. 1 made 8 bbls. and No. 2 was a duster. The lease lies on little Barren River, near the hamlet of Alone.

Cumberland County

Due to the interest being manifested in the delivery of oil and the output of the wells, drilling activities in the Cumberland County area are at a low ebb. This condition will probably prevail until after the holidays.

E. M. Treat's No. 1 Sam Riddle, in the Bear Creek district, is back on oil and is pumping at the rate of 120 bbls. daily. The well was cleaned out a few days ago and was equipped with a 3-inch working barrel. Wilcox Brothers are drilling at 235 feet in No. 1 Sarah Sheckles.

Sulphur Creek: Hook, Ross & Wise's No. 1 Sam Riddle is shut down at 650 feet. The Combest Oil Syndicate's No. 4 Huddleston 210 acres is nearing the pay sand and should be finished the first of the week; Douglas St. Clair's No. 1 Victoria King is making hole at 370 feet; 8¼-inch casing was set at 330 feet; Combest Oil Syndicate's No. 1 Groce, is down 200 feet and drilling.

Kettle Creek: No. 3 Bud Kerr of the Gartlan estate is shut down at about 397 feet. It is reliably reported that Nos. 1 and 2 have put 10,000 bbls. of oil through the pipe lines since they have been put on test about the first of the month. The Daniel Boone Oil Co.'s No. 3 Widow Logan, is still rigging; Atlantic Oil Producing Co.'s No. 1 Dowell, is being tested; Young Oil Co.'s No. 2 J. B. Poindexter, shut down; W. S. Raydure has resumed drilling on his No. 1 Porter Huddleston, which pumped dry in a sand found at 1,100 feet, and is now drilling at 1,170 feet; No. 1 Smith, No. 1 Barksdale, No. 1 Scott, No. 1 Spear and No. 2 Crawford have been shut down until after the holidays. The wildcat test on the Ethel Baker farm in the Marrowbone Creek section, has been shut down for orders at 745 feet, 150 feet below the shale.

Monroe County News

People living along the headwaters of Kettle Creek, in Monroe County, near the big oil field are very much alarmed by reports that the earth in that section is sinking at various points. It is said that at one point, the bed of the creek is sinking, at another point, the public road is sinking, and at several points the earth is noticeably lower than formerly.

There is much speculation as to the cause of this unusual movement of the earth. Some are of the opinion that it has been brought about by the great amount of gas released in that section and oil taken from shallow wells, while others are of the opinion that shooting some of the wells may have changed the course of some big subterranean stream, causing it gradually to eat the earth away, and that at any time the crust may become thin enough for that section of the country to sink. People of that section are seeing visions of the making of another Reelfoot Lake, which was caused by the sinking of the earth's surface.

About 70 years ago a terrific explosion occurred on this creek, cause of which was never explained. Several hundred

(Continued on Page 95)

Looking backward on the Eve of the New Year

1909

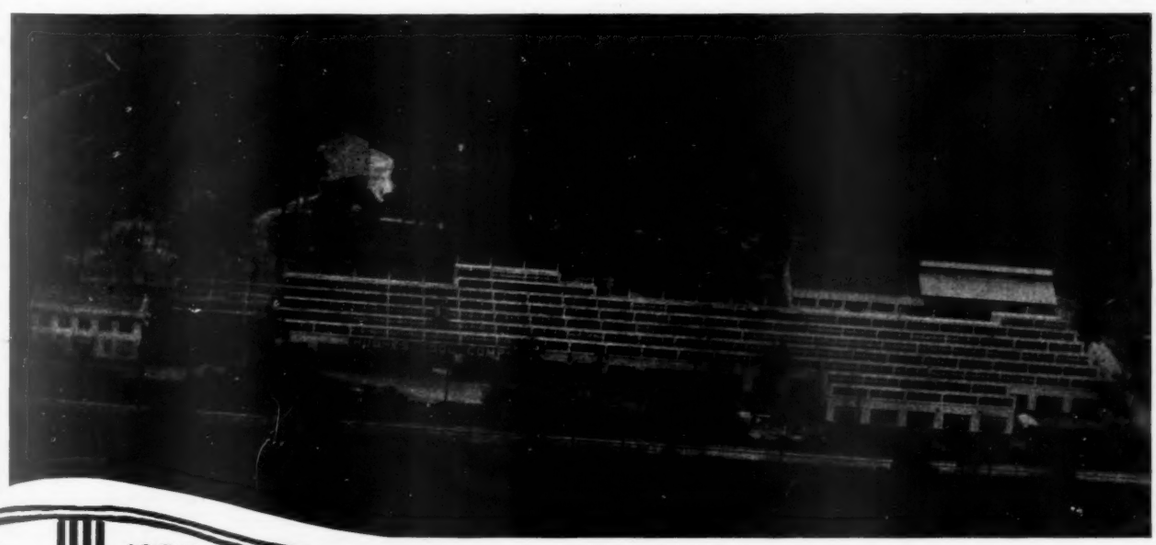
1911

Friendship, co-operation and confidence from driller to company president has speeded the phenomenal growth of the Hughes Tool Company.

Looking to pioneer days of the invention of our rotary rock bit, I want to express my deep feeling of gratitude for the support my friends have given our organization. In looking forward we wish for your continued friendship.

May the New Year bring everything you desire is my sincere wish.

Howard R. Hughes



1924

Hughes Tool Co.

Houston, Tex. Branch-Los Angeles, Cal.

British Anxious About Petroleum Supply

World Survey of Present Day Conditions and Prospects for Oil by Vice Chairman of the Anglo-Persian Oil Co.

By Admiral Sir E. J. W. Slade
Vice Chairman of the Anglo-Persian Oil Co., Ltd.
Address delivered before a conference of British Commercial Motor Users Association, London

Between 1913 and 1922, the United States, Mexico, and Persia have absorbed the share in the world's petroleum markets lost by Rumania, Russia and the East Indian Archipelago. As regards consumption in Great Britain, there has been an increase in imports between 1913 and 1922 of 2,580,000 tons, or 125 per cent, in nine years. This increase has been provided for the most part by the American and Persian areas. In motor spirit imports there has been an increase of 798,000 tons, or just over 200 per cent, the greater part provided by the American and Persian oil fields. Although at present the greater part of the supply comes from America, it looks as if in the future we shall be drawing more of our supply from Persia than from America. The proportion coming from the East Indian Archipelago appears to be more or less constant, while Russia and Rumania for the moment do not count for very much. I very much doubt whether they will have any appreciable effect on the market here. In the past Russia has absorbed the greater part of what she can produce, and it is unlikely that different conditions will obtain in the future.

Similarly, the Rumanian area is not capable of seriously participating in the market here; her production is largely taken up by her local markets, and by that I mean not only Rumania herself—who absorbs 60 per cent—but Galicia, Austria and the countries bordering on the Danube.

The production in the East Indian Archipelago is rising, but it is not rising at the same rate as the demand for motor spirit here, and therefore, it is only to be expected that the share of the market which this area held before the war should have fallen. It is, however, the most important source of supply after the American and Persian areas.

Question of Consumption

Let us now turn to the question of consumption.

The number of motor vehicles in the United Kingdom for the last five years have increased 62 per cent and they have increased 100 per cent in the United States during the same time. As a rough estimate, it is assumed the annual consumption of motor spirit for each vehicle is about 352 gallons in the United States and about 330 gallons in the United Kingdom.

So far, I have dealt only with motor spirit as a fuel, but kerosene and fuel oil are also used for that purpose to a less extent. The imports of kerosene into the United Kingdom in 1913 were 635,000 tons, and they are now 719,000 tons, an increase of only about 13 per cent. Of this, 68 per cent comes from America, 6 per cent from Rumania, 3 per cent from Russia, 20 per cent from home sources (mostly manufactured from Persian oil, imported either as crude or semirefined), and 3 per cent from other sources.

These figures are practically the same as before the war, with the exception that Rumania's share was then 14 per cent and home production only a fraction of 1 per cent. Of this, about 57,000 tons, or 8 per cent, is used for transport purposes; 517,000 tons, or 72 per cent, for illuminating and heating; and the remaining 143,000 tons, or 20 per cent, for general industrial purposes.

With regard to the use of fuel oil for transport purposes, very little has yet been done in this matter. Research is proceeding, but up to the present no really economical commercial method of utilizing fuel oil on the road has been evolved.

The imports of fuel and gas oil amount to 1,800,000 tons, practically the whole of which is used for either industrial purposes, for bunkers, or for gas making.

Lubricants Problem

As has already been pointed out, the importance of petroleum does not end with its use as a fuel, and as the basis of nearly all lubricating oils is petroleum, the question of the sources of supply of lubricating oil cannot be separated from that of any other product of petroleum. It is estimated that last year—1922—the world's consumption of lubricating oils was about 3,500,000 tons, but as many of these oils are compounded, and not straight run oils, it is difficult to give any figure for the amount of petroleum products consumed thereby; but it is known that this figure is very large. Worked out on the results of the running of a large fleet of commercial vehicles, on a total distance run of about 1,500,000 miles, the consumption is approximately .006 gallon per ton mile, in round figures.

In the search for new petroleum areas, the two which hold out the greatest promise at pesent are the Southern and Central American area and the Iraq, or Mesopotamian and Persian areas. In the four years since the war the output of Peru has increase from 300,000 to 700,000 tons, and that of Venezuela from 50,000 to 350,000 tons, and a very considerable increase on these figures may be looked for. It is known there are areas in both countries which are very promising, but have not been developed. It is reported that in Bolivia there are also promising signs of oil, but the country being covered by dense forests, the geological features are much hidden. It is also so far from the sea its exploitation would be most expensive, and it is improbable that any serious attempt will be made to open it up until the more accessible fields have been thoroughly explored.

Colombia is another very promising area yet to be developed. The quality of the oil is good, and again it is to a great extent the physical difficulties which hold up development of these possible fields of supply. The natural outlet for the oil from these areas is the American Continent and not Europe. The increase of demand in North America will be followed by an increasing demand in South America, and, as in all other fields within easy reach of densely populated industrial countries, the nearby market naturally absorbs the greater part of the production, and only the surplus, if any, is available for more distant sale.

Persian Prospects

In the African Continent the prospects for oil so far do not appear to be good. There is said to be a promising field in Angola, which is being developed by American interests, and there are signs of oil in other parts; but to the present, no indications are available from which to infer the presence of a large producing field. The Egyptian Field has been disappointing to a certain extent, and it still remains to be proved whether it extends south into Abyssinia and the Soudan. In Asia lies the principal hope of an expansion interesting to the European market. In Persian the prospects for oil are extremely good. The proved fields are very prolific, and there are encouraging signs of oil over large areas which have yet to be investigated. In fact, there is little doubt that in the near future Persia will be able to produce all the petroleum required by the United Kingdom.

In Mesopotamia—or Iraq, as it is now officially named—there are indications of a very large field, but it will be some years before this can be proved and brought into production, and a large amount of capital would have to be provided and expended for the purpose. Pipe lines and refineries capable of dealing with large quantities of oil are not undertakings which can be installed on short notice. Distances look small on most maps of Iraq, but as a matter of fact it is a country larger than the whole of France, and to bring the oil from the fields to the Mediterranean would require a pipe line sufficiently long to go from Madrid to Paris and the distance from the present only proved field at Naft-Khana to the head of the Persian Gulf is as far as from Calais to Marseilles.

The fields in the East Indian Archipelago remain fairly constant in production, but there has been a considerable increase in the last four year in the output of the field at Sarawak, namely, from 71,000 to 406,000 tons. There is also a promising field in Sumatra, now in process of examination. In Europe the only field of importance at present is the Rumanian. The production has not yet reached the level it attained before the war. In 1913 it amounted to 1,800,000 tons and in 1922 it was only 1,300,000 tons; but we cannot expect to draw any considerable portion of our supplies from these fields because the output is largely absorbed by the local markets.

British Supply

The fact that at the present moment we are practically dependent on foreign countries for the supply of liquid fuel of all kinds renders it a most important question to find a substitute more under our own control. Research is busy on this problem, but no satisfactory solution has yet been found. There are three lines of attack:

1. The modification of existing known light hydrocarbons other than petrol to suit the present internal combustion engine without submitting the latter to radical changes. As examples, we may consider benzole, alcohol and various mixtures of these with each other or with other light hydrocarbons.

2. The modification of existing engines to use liquid or other substances not at present employed as fuels for road and aerial transport. As an example, the utilization of heavy hydrocarbons, such as ordinary fuel oil or of coal in a powdered form, or of both in combination.

3. The discovery of some entirely new method of producing mechanical power.

Of all these, the most effective and promising substitute at the moment is benzole, which is a product of coal and is obtained from coke ovens and gas plants, and it is estimated that, on an average, 2½ gallons of benzole are obtained from each ton of coal. If we could get this average from all the coal retorted in this country it would go a very long way toward securing our position as regards motor fuel, but the production of benzole must always be limited by the demand for other derivatives of distillation, chiefly coke. There is also the possibility of obtaining liquid fuel from the retorting of all coal used in this country. Although there are numerous retorts working, it does not seem as if the industry was yet out of the experimental stage so far as the production of commercially utilizable motor fuel is concerned.

Motor fuels, of whatever nature they may be, compete with each other on the basis of price and efficiency, and, given approximately equal efficiency, it is the price which rules. The basis price is fixed by the price of petroleum liquid fuels of similar quality, and unless the undertaking can produce and market its fuel at a price equivalent to the basis price it has no chance of establishing itself on the market. The trouble in most cases is to dispose of the by-products and it is this difficulty which causes the price to rise. Then again, the quality of the crude oil produced in the retorts is often such as to present great difficulties in the ultimate treatment; this again sends up the price, and until the processes are so developed that the refiners are supplied with a crude oil which is more or less consistent in composition, this difficulty will remain a serious one.

As another possible substitute for petroleum products we have alcohol, either alone or as a mixture with other volatile fuels. Here again, research is busy, but so far, although laboratory results are hopeful, success on a large commercial scale has not yet been

(Continued on Page 80)

CONSERVATION OF PETROLEUM AND SEARCH FOR SUBSTITUTES

Dr. W. R. Ormandy, following Admiral Slade, said there were still enormous possibilities of increasing the supplies of oil by improving the efficiency of the internal combustion engine which at present is only about 5 per cent. He thought of great importance the conversion of coal into liquid products by the action of hydrogen under high pressure and at high temperatures. This process, first worked out in Germany, was so highly thought of by the Royal Dutch Oil Co., he said, that something like £400,000 had been spent in research upon it and experimental plants were running converting two tons of coal into one ton of oil and from the excess quantity of one ton was produced all the heat and hydrogen necessary for the process. Such plants were running continuously and certain groups in France, Belgium and Luxemburg were putting in plants in their own countries and were anxious to secure rights in the United Kingdom also. He considered the problem of converting coal into liquid hydrocarbons a matter of absolute safety for the British empire. The oil produced was in every way suitable for internal combustion engines but he was not able to say whether the process produced lubricating oils. During a period of 12 or 15 years a sum of £800,000 had been spent in developments in this direction.

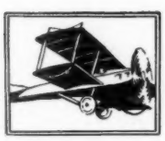
Reported in the Oil and Color Trades Journal, London.

The Bear Tractor

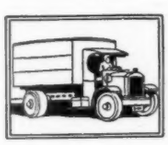
Power!

Why Great Reserve in a Tractor Engine?

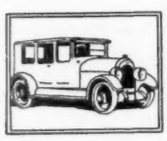
The aeroplane uses practically all of its engine's power and operates only a few hours without an overhauling of the engines.



The truck uses about 50% of its engine's maximum power and gives comparatively little engine trouble.



The passenger car uses only about 20% of its engine's maximum power and seldom goes in for engine repairs.



DO YOU realize that in the passenger car the average horsepower actually used is but 20% of the maximum capacity of the engine? And in the truck, but 50%?

The use of only a fraction of the maximum engine capacity not only makes sure of securing the *full rated* power but also insures *reliability* of performance which could not be expected from an engine operating at or near its maximum.

The Bear Tractor power plant, like that of the truck, is designed for surplus power. In order to develop its full rated horsepower, the Bear requires only about 50% of its engine's maximum capacity. The Bear is rated at 25 horsepower at the drawbar. To deliver this, the engine is required to furnish approximately 35 horsepower, which represents less than one-half of the maximum capacity of the Bear Engine.

This large reserve power in the engine makes the Bear Tractor, in point of dependable power, comparable with the best trucks. Its engine, operating with such great reserve, gives the Bear Tractor user remarkably satisfactory results in building and maintaining highways, removing snow, hauling logs, freighting in oil fields, pulling farm implements or doing any other tractor work. The Bear power plant means *greater reliability*—a primary essential to a tractor that operates at low cost per unit of work done.

BEAR TRACTORS INC. 5323 PARK PLACE NEW YORK CITY

The Tractor that Delivers its Power to the Drawbar

NATURAL GAS DEVELOPMENTS

GAS WASTE IN BURMA 30,000,000 FEET DAILY

It is estimated that the oil wells of Burma give a flow of 30,000,000 cubic feet of gas every 24 hours, according to a report from Consul J. P. Moffitt. In addition to this there is a large amount of gasoline-impregnated gas that escapes from the storage tanks and refineries.

Formerly no use was made of this gas beyond firing a few oil field boilers, but at present the Burma Oil Co. has an installation at Singu, where by means of the "Bessemer Compression" process, gasoline is extracted from casinghead gas at the rate of 1.8 Imperial gallons (1 Imperial gallons equals 1.2 American gallons) to every 1,000 cubic feet of gas treated. The plant has a capacity of 500,000 cubic feet every 24 hours and it is the intention of the Burma Co. to double this capacity within a short time. Still another absorption plant is under construction at the Yenangyaung Field which will handle 5,500,000 cubic feet of mixed dry and casing head gas every 24 hours.

The gas will also be put to other uses such as firing the boilers of electric power stations and as a fuel for gas engines, so that it is believed that all the available gas will be utilized by another year. This gas when sold as fuel is worth about 35 cents per 1,000 feet.

At present there is no law requiring the conservation of this oil well gas and it is only within the last two years that the oil companies have realized its value and have made any effort towards using this natural resource.

ASK NEW KANSAS RATES

TOPEKA, Kans., Dec. 20.—An increase in gas rates in Wichita, Hutchinson and Newton was asked in a petition filed with the State Public Utilities Commission by the Kansas Gas & Electric Co. Instead of a two-part rate operative in these cities under grant of the utilities commission, three years ago, the company asks for permission to install a three-part rate as follows: Customers' charge of $9 a year, 32 cents per annum feet of maximum hourly demand; 40 cents per 1,000 feet consumed.

The company's petition states that because it has been required to spend approximately $200,000 in installing new devices, the old rate no longer enables it to realize a fair profit. The present rate is 58 cents per 1,000 feet, plus a service charge of 75 cents per month, at Wichita; 60 cents per 1,000 at Hutchinson and Newton.

INFRINGEMENT SUIT

The Rotary Disc Bit Co., of Los Angeles, brought suit in Federal Court there recently against the U. S. Tool Co., of Long Beach, Cal., alleging infringement of a bit which was patented in 1912, and asking for an accounting and an injunction. The inventor of the bit which formed the basis of the controversy was asserted to have been Thomas F. Litaker, formerly of Fellows, Cal., and it was claimed that the plaintiff company took over his rights.

HIGHER RATES IN PITTSBURGH

PITTSBURGH, Pa., Dec. 22.—G. W. Rattcliffe, treasurer of the Manufacturers' Light & Heat Co. has presented arguments to Mayor Magee, and City Council in support of the increased rate for natural gas. Figures indicated that expense of operation increased more than 46 per cent from 1917 to 1922.

CANADIAN GAS NEWS

CHATHAM, Ont., Dec. 22.—The Canadian Western Natural Gas Co. of Calgary has formally notified consumers at Lethbridge, Alta., that the gas service to that city will be discontinued on January 8. The city is appealing to the Alberta Public Utilities Board for an order compelling the company to continue the service.

In the Ontario fields, the Union Natural Gas Co. No. 248, Truckenbrod farm, a half mile east of Port Alma, in Kent County, is reaming down to the Trenton limestone before drilling into that formation. No. 249, deep test on the Mancell farm, Tilbury East, is drilling in the upper formations.

The natural gas board of reference for Ontario held a sitting at Chatham on December 18, with reference to certain gas lines in Chatham Township. The Union Natural Gas Co. is applying for an increase in the gas rate from 30 cents to 40 cents, and the township authorities are disputing the right of the company to use the township roads for its line.

OKMULGEE CITY PLANT URGED BY COMMITTEE

OKMULGEE, Okla., Dec. 22.—Plans to show that a city owned gas plant could be operated to supply gas to consumers at approximately one-half the present rate, pay the expense of operating and retire the bond issue in 25 years, were laid before a meeting of the Citizens Gas Committee by W. H. Jones, director of the Chamber of Commerce.

It was agreed at the committee meeting that the city should lay its own mains and install its own equipment. It was said that gas can be obtained at 10 to 15 cents and supplied to consumers at approximately double that price. This would reduce the present rate nearly one-half.

It was urged by the committee that as many property owners as possible sign the petitions which are being circulated so that the matter may be taken up with engineers and an estimate of the cost of the plant and distribution system be made.

The gas committee has been in conference several times since its appointment early in November, and the outgrowth of their activities has been a move for a municipal owned gas plant and distribution system.

MINERS ASSURED GAS BY NEW QUAPAW LINE

With the completion of a new 6-inch main that taps the 16-inch line near Quapaw, Okla., the mine operators of the Kansas zinc and lead field are assured plenty of gas to run their engines this winter, according to D. H. Snow, manager of the Baxter Springs Gas Co.

The line will have no connections to the Oklahoma field, but will serve exclusively the Webber, Vinegar Hill, Barr, Chubb, Kansouri, Cherokee, Lawyers, Silver Fox and Lucky Jew mines, and others in the immediate vicinity.

The shutdowns last winter occasioned by a shortage of gas in the Kansas field caused a curtailment in production which will be remedied by the completion of the new gas main.

GAS RATES IN MONTANA

The Montana Public Service Commission has ordered a reduction in the gas rates changed in the town of Shelby by the Northern Utilities Co. The hearing on this case was held October 29, but the decision was reserved, the order becoming effective December 15.

The new rate is as follows: First 5,000 cu. ft., 65 cents per thousand; 5,000 to 10,000, 60 cents per thousand; 10,000 to 20,000 feet, 50 cents per thousand; 20,000 to 40,000 feet, 45 cents per thousand; all over 50,000 feet at 50 cents per thousand; minimum, $1.50 per month.

OUTPUT OF GAS PER BARREL OF OIL IS ONE TRUE MEASURE OF EFFICIENCY

If more gas than is needed is used for producing oil, a direct waste of gas and an indirect waste of oil result, as so-called "dead oil" that can never be recovered by ordinary producing methods is left underground in the oil sand. To recover this oil would necessitate costly artificial methods which some day may include mining of the sands. It has been estimated that ordinarily from 80 to 90 per cent of the original oil in an oil sand is left underground when a well is abandoned. If, by new methods of controlling the flow of gas, this percentage could be reduced by 10 or 20 per cent (and it seems reasonable to believe that even greater reductions may be possible), the benefits from increased oil recovery can not be overlooked. For this reason, if an operator permits more gas to flow into the well than is needed to bring the oil into the hole, he is wasting a commodity that the Government is anxious to conserve.

The smaller the gas factor of oil production, the smaller would be the quantity of gas used in producing each barrel of oil, the slower the decline in rock pressure and depletion of the gas, and, consequently, the greater the ultimate quantity of oil that each well will produce.

The possibility of reducing the amount of gas produced with each barrel of oil by a flowing well is one now engaging the attention of the bureau's engineers. Most operators realize the need for holding some back pressure on large flowing wells. If the strong wells are allowed to flow without restraint they often cause untold damage by drawing in water, sanding up, cutting out casing with sand, cutting away the casing seat, and forming emulsions. Reducing the flow of strong flowing wells that tend to make water or sand, or, if very strong wells, reducing the flow on general principles as a safeguard against possible damage to the hole, is good practice. In most fields back pressure on flowing wells is held by flowing them through chokers (flow nipples or "beans") which are inserted in the flow line. Choking down a well tends to cause it to flow more steadily and protects it against the violent flowing action caused by high-pressure gas pockets reaching the hole. The exact effect on the efficiency of production of holding back pressure on flowing wells at the casing head has not been clearly established, although data at hand indicate that choking down a flowing well may decrease its efficiency unless additional measures are taken to control the flow, perhaps at some point in the well.

The number of cubic feet of gas produced with each barrel of oil is the true measure of efficiency of production of a

(Continued on Page 66)

TOWN DRILLS FOR GAS AND USES IT FREELY

OKLAHOMA CITY, Okla., Dec. 22.—If there are any practical uses to which natural gas has not been put, the experimentation of cowpunchers, sheep herders and cotton pickers of the vicinity of Moravia (Oklahoma), are likely to discover them before the winter is over, says Herbert Cook, Oklahoma City oil man, who recently returned from a tour of Beckham and Greer Counties.

Moravia is about 15 miles southeast of the Sayre Pool and south of the North Fork of Red River. Having been aroused by the discovery of gas in the Granite Field, south, and of gas and oil in the Sayre Field, north, it began operatiag on its own and secured the services of a Wichita Falls man to do the drilling.

At about 1,000 feet this man found gas, about 5,000,000 feet per day. He is drilling another well and other parties have locations in the neighborhood, all seeking a shallow pool that is supposed to be related to the Sayre deep pool.

"Gas is being piped all over the country," says Cook. "You drive up to a burg with two stores and a blacksmith shop and find the buildings heated with gas. Farm houses are using it and barns are lighted with it. Gas is the most popular commodity those prairie folks have ever used and they are bent on doing all kinds of things with it."

PROPER UTILIZATION CUT NATURAL GAS BILL

As a result of the exercise of care and economy, the Tulsa City Schools had a gas bill for November this year practically the same size as in November of last year, despite the fact that the average temperature during November, 1923, was about six degrees lower than a year ago. This also was in the face of the fact that the rate now is 60 cents per 1,000 feet as against the 42-cent rate last year. Through methods of efficiency, the volume of gas used in the city schools was 2,000,000 feet less than in November, 1922.

R. C. Sharp, vice president, Oklahoma Natural Gas Co., called attention to the fact that the gas rates at present in force in Tulsa and other cities served by that company, had been fixed by the State Supreme Court.

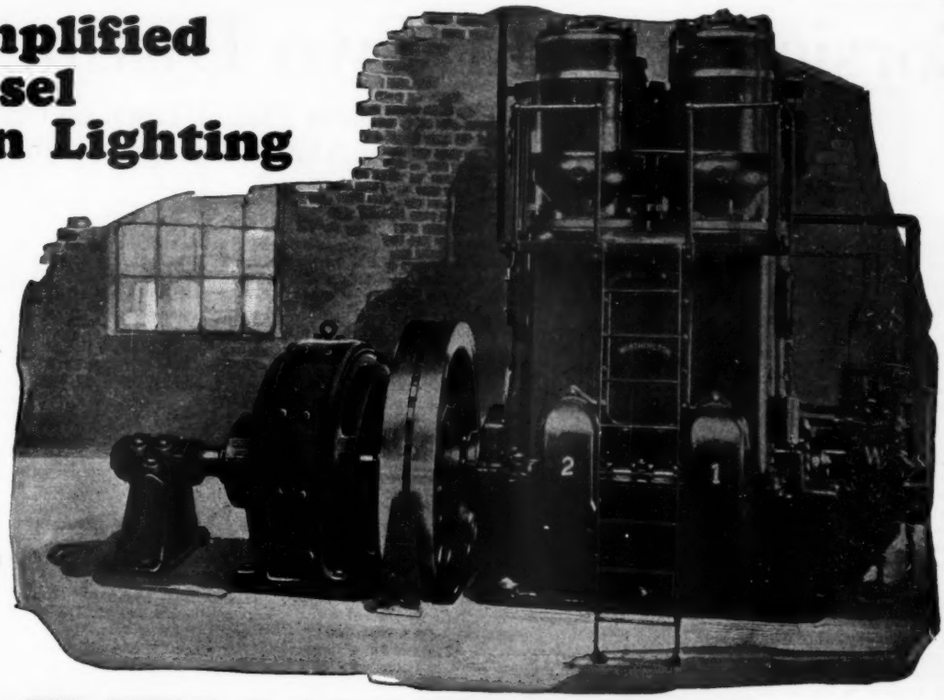
There will be plenty of gas for Tulsa users this winter, in the opinion of Mr. Sharp. He also called attention to the fact that, where customers believe their gas bills unduly high, the company has instituted a service department to give advice regarding the most economical manner for using the fuel.

"READY TO SERVE" CHARGE TEST

AUSTIN, Tex., Dec. 22.—Appeal of the Municipal Gas Co. from action of the City of Wichita Falls, denying it right to charge a 50-cent "ready to serve" charge, was argued before the State Railroad Commission. J. W. Hassell, former chief or the Railroad Oil and Gas Division, represented the gas company as attorney. President C. B. McKinney of the company was also here. The city's arguments were made by C. C. McDonald, special counsel and W. E. George, City Attorney. The case was taken under advisement pending action by the commission.

It was the first case submitted on oral arguments involving appeals from a city's regulatory power over utility rates. The commission's power over municipal gas rates has just been upheld in a State Court of Civil Appeals.

The Simplified Diesel For Station Lighting



The Worthington Diesel shown at the right is exceptionally well adapted to station lighting and for driving auxiliaries. It is a two-cycle, solid-injection full Diesel of greatly simplified design and will operate on any commercial crude or fuel oil. Starts cold, has no hot plates or sparking devices. Built in 30 and 60 H. P. and larger sizes for either D. C. or A. C. generators.

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"The Valve With a Leg to Stand On"

Any Size = Any Pressure

Good Pipe Line Construction Includes Westcott Valves

Manufactured By **Westcott Valve Company, Inc.** Seneca Falls N. Y.

Corsicana Had Two Distinct Oil Booms

Shallow Sand Development Placed Town on Oil Map 30 Years Ago. Population Almost Doubled Within a Year

By Dan F. Dugan

CORSICANA, Tex., Dec. 17.—It does not fall to the lot of every town to be the center of two distinct "oil booms." Corsicana has had that experience. It is the oldest oil town in Texas.

Thirty years ago when this was a very small and insignificant place it was put on the oil country map by the opening of a shallow sand development near the village where, in the course of time, over 1,000 producing wells were drilled. The field is still producing a few hundred barrels daily, which the Magnolia Pipe Line Co. handles exclusively. The total production of the old Corsicana Field has run into the millions of barrels.

When the Spindletop Field was opened Corsicana was still the most important oil town in the State and it was to that field that Spindletop operators turned for men and material to drill their newly opened territory.

The Mexia Field brought it back into some prominence as it received the overflow from that town during the height of the excitement in the Limestone County town, but it was not until January of this year that it resumed its place more prominently than ever as a petroleum center. The Corsicana Deep Well Drilling Co., made up of intrepid oil men who lacked only capital, after going through all the misfortunes that can beset an organization without sufficient money to buy first-class new supplies, got a well down on the Springfield farm, a few miles east of town, but nearer the railroad station at Powell, and opened the Powell Field. The well produced 40,000 bbls. in 30 hours and then bridged. A heavy salt water flow followed and drowned the oil. It was located at the northeastern end of what later proved to be one of the most sensational fields in history. Since that time the Powell Field has produced approximately 28,000,000 bbls. of oil.

Discoverers Profited Little

The discovery well was drilled on a 10-acre tract out of a 50-acre lease and on an offset lease adjoining the farm of Green Springfield, a negro. The oil shot over the derrick and sprinkled the negro farmer's house. The holdings of the discovery company were taken over by the Humphreys Oil Co., offsets were started and intensive drilling activity followed, and up to the present time nearly 600 deep wells have been drilled on a "shoe string" formation over 8 miles in length.

Following the drilling of the discovery well and during the past 10 months the town of Corsicana has grown from a population of 15,000 to 25,000. Bank deposits have increased more than double, and at the present time are over $10,000,000. New buildings and municipal improvements this year have cost $2,000,000.

Farmers Made Rich

Navarro County land owners and farmers whose farms lay along the Powell's golden land are the largest depositors in Corsicana banks. The additional $5,000,000 in deposits in the local banks is in a large measure credited to these fortunate royalty owners.

Green Springfield, owner of 410 acres of land lying along the Chambers Creek bottoms, was the first land owner to make a clean-up in leases and royalties. All of this land was leased up during the Mexia boom with the exception of a 5-acre block near his house. This he immediately leased, the consideration being a new automobile. The discovery well was drilled on this sub-division. The boom was on and the negro's fortune was made. Royalties on the 410 acres, added to the revenue cleaned up from the sale of leases netted the colored farmer within less than a month an immense fortune. Practically all of his royalty he sold, and at fabulous prices. Locations close to the big well brought as high as $10,000 an acre.

Thrifty Negro Cleaned Up Fortune

Green Springfield, the discovery fee owner, was born in Alabama 68 years ago. He came to Corsicana at the age of 12, his parents accompanying a wealthy white family here when the first trains were running into the town. At 21 years of age Springfield became a farm hand, noted for his thrift. With him fighting the battles of a monotonous farm life has been his faithful wife, Harriett. Eight children have been born to them. Five of them are grown and married. He first bought a tract of land of 100 acres where his home stood for a number of years. The land cost $10 an acre, and his house consisted of a living room and kitchen. An addition was built to the original structure, and the Springfields pursued their daily life on the farm. Springfield was a successful farmer, and kept his place well stocked. As the children married off he built small tenant houses on parts of the 410 acres for them and looked after their welfare in getting started in life.

Green Springfield, on whose land the discovery well in the Powell Field was drilled. This thrifty negro and his family are now living in affluence. Springfield proved himself a good bargainer and wrung fancy prices from excited lease buyers. Later events developed the fact that the Springfield lands lay on the least productive part of the field

Oil operations disturbed the even tenor of their way. The house was leased out and Green and Harriett sought more peaceable realms in a tenant house on the farm. He recently constructed a new seven-room home in East Corsicana, but still looks after his agricultural interests. "It is too early to quit yit," he declares as he discusses plans for the coming year's crops. Springfield is prominent in the work of his church, and serves as chairman of the financial committee, and in all the activities of the church he attends. His two youngest children are away at school, and the farm is looked after from his home in town.

Judge McKie a Big Winner

M. J. McKie, Corsicana lawyer, one of the earliest settlers in this part of Texas, perhaps has realized more out of royalties in oil than any other individual owning land in the pool.

It was on one of Judge McKie's farms that the Hughes Development Co. drilled the well that really made the Powell Field, after salt water conditions had nearly condemned the territory between the Hughes and the discovery well. The Hughes Development Co. completed its test in the latter part of May and it started at about 8,000 bbls. a day. This was the famous "fire well" where 14 men lost their lives last June when gas from the well caught fire by friction.

McKie owned in fee 1,400 acres of land, all of it in line of production. More than 60 producing wells have been completed on one McKie tract alone. W. J. McKie first came to Corsicana as attorney for the Cotton Belt Railroad in the early eighties. His lands were acquired through purchases from time to time at an average price of $10 an acre. The Humphreys Oil Co. has over fifty wells on a 320-acre McKie lease, the Hughes Development Co. 12 on another smaller property and the Humble, Texas, Roxana and Gulf Companies each have several producers on McKie lands. Right after the recent war, due to the slump in the price of agricultural products and cattle, Judge McKie was considered land poor. It was a hard proposition to pay taxes on the property. Sale of lands was slow. A long, hard pull had been made by the aged attorney before the golden oil pool was discovered. His royalty, none of it being sold before production was found, has netted him several millions.

Davis Took a Chance

L. T. Davis, on whose lands some of the biggest wells in the field were brought in, is also among the royalty kings. A tract of 73 acres, the land too poor to even grow peas, has had a total of 16 wells, none of which made less than 10,000 barrels initial production and several of which made close to 20,000 barrels. Davis sold none of his royalty.

"I have owned that land for a number of years, and if there is oil underneath it I will get my full eighth, and if not I will be none the worse off than I have been since owning it," was Davis' reasoning. Fabulous prices were offered him as the pay trend swept in his direction, but as the Humble Oil & Refining Co. leased the farm and began drilling, Davis still held on to his full eighth. All offers made him by royalty dealers to sell it were rejected. Already 1,000,000 bbls. of oil have been run from the 16 wells and they are still producing.

Davis was for years a tenant farmer, a small town butcher and chili restaurant keeper, a grocery clerk, and at the time of the first well being drilled on his property conducted a small butcher shop and dealt in chili. He is now considering the establishment of a wholesale chili canning plant to be located in Corsicana. He had ceased to run the farm himself several years before oil was discovered, having found it too slow a business.

S. D. Ramsey, another farmer and now a royalty owner, amassed a fortune when about 30 flowing wells were drilled on his lands. He took up his residence in Corsicana, overseeing his farming interest and conducting a small mercantile business.

Tank farms in which the production has been stored include about 8,000,000 bbls. storage capacity. Most of this is owned by the Humble Pipe Line Co., which company has produced about one-third of the entire output of oil. A total of forty 80,000-bbl. and twenty-eight 55,000-bbl. steel tanks have been completed on the Humble Oil & Refining Co.'s tank farms. The Gulf Pipe Line Co. has a tank farm of twelve 55s, and the Buttram-Tidal seven 55s, the Hughes, Humphreys, Prairie, Sinclair and McMan Oil & Gas companies have a dozen each of 55s and a number of 80s.

Storage in the local fields and at Mexia, where large quantities of the Powell Pool oil have been run amounts to about 26,000,000 bbls. Rail shipments amount to around 300 tank cars a day.

The oil field towns of Tuckertown, Whitten and Navarro with several thousand population have sprung up like mushrooms. Engineering work in the various parts of the field represent an expenditure of about $1,000,000.

The county tax assessor's rolls show an increase in taxable values from $28,000,000 in 1922 to $53,000,000 in 1923.

Gross Production Tax Yields Oklahoma Over Thirty Million

From January 1, 1919 to January 1, 1924, the gross production tax in Oklahoma will have yielded $30,689,014.10. One third, or approximately $10,200,000 has been returned to the counties to be used for the building and maintenance of highways and the common schools.

For every dollar's worth of oil produced in Oklahoma the producer must pay the State 3 cents. One cent, or one-third, is returned to the county. The other two-thirds is appropriated for State Government.

For the 12 months ending December 1, 1923, the State's proportion of this tax was about $8,000,000, or a sum sufficient to pay all departmental expenses of Government. The total cost of running the State for the year was approximately $12,000,000, of which $4,000,000 went to institutions and was raised through other methods of taxation.

Since January 1, 1919, $422,724.39 has been returned to Tulsa County, which was sixth in the State for the five-year period. It was topped by Creek, Okmulgee, Carter, Kay and Osage Counties.

The fiscal year of 1920 and 1921 was second to the calendar year 1923 in the amount of gross production revenue. It was $7,745,255.57, compared with $8,061,191.04 this year. There are 38 counties out of the 77 in this State that pay gross production tax.

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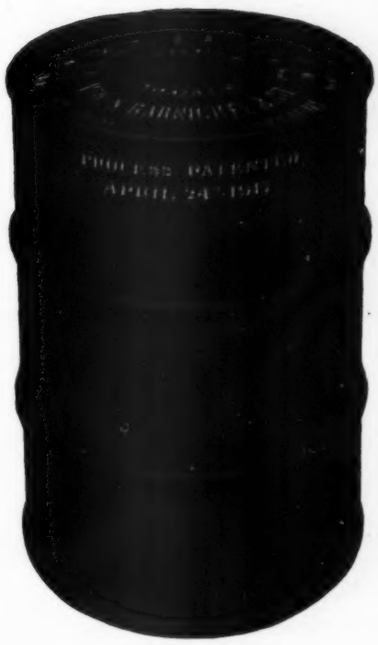
When your well begins to cut, or treating of tank bottoms becomes a problem, call in the nearest TRET-O-LITE expert. A wire to us will bring you his address.

Our field men will run tests to show you exactly what TRET-O-LITE will do, will recommend the best type of plant for your particular need, will superintend its construction (mainly from pipe and tanks such as you already have available), and will instruct your men in its operation.

TRET-O-LITE treats fresh cut oil at an average of 1½ cents per barrel of recovered oil. Tank bottoms average 6 cents. It secures a clean "break," and recovers ALL the oil. Write for our book, "TRET-O-LITE."



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Tret-O-lite
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A Mid-Continent TRET-O-LITE Plant Which Recovers 10,000 Barrels of Pipe Line Oil Daily

MEN KNOWN IN OILDOM

Otto D. Donnell

Otto D. Donnell was born in Allentown, New York. At an early age, during the height of the oil excitement, he moved to Findlay, Ohio, with his father. Upon his graduation from Case School of Applied Science, at Cleveland, Ohio, he entered the employ of the Ohio Oil Company in the pipe line department, and since that time he has been actively engaged in the various branches of the business of that company. He is now vice president and treasurer of the Ohio Oil Company.

PERSONAL PARAGRAPHS

W. H. Harrington has been appointed temporary receiver for the Ohiokla Oil Company.

* * *

J. F. Blake of Tulsa was in Casper, Wyo., last week on business for the Sinclair Pipe Line Company.

* * *

James Regan is back in Los Angeles, Calif., after a trip covering practically the entire United States and part of Canada.

* * *

Harry I. Miller, sales manager of the Detroit Graphite Company, Chicago, attended the institute sessions at St. Louis.

* * *

R. J. Sharpe of the General American Tank Car Company, Tulsa, spent several days last week in Chicago on business.

* * *

Walter Willard, field secretary of the American Oil Men's Association, Chicago, spent several days last week visiting friends in Tulsa.

* * *

W. J. Connelly of the Mammoth Oil Company returned to Casper, Wyo., last week from a trip to the New York offices of the company.

* * *

Clyde Ellwood, district manager for the Axelson Machine Company, left Casper last week with his wife and daughter for a visit to Los Angeles.

* * *

V. L. Crawford, sales manager of the Everstick Anchor Company of St. Louis, spent several days last week in Tulsa on business for the company.

* * *

M. C. Crouch, representing the Frick-Reid Supply Company in Casper, Wyo., is back at his office after visits to Salt Lake City, Fort Collins and Lost Soldier.

J. W. Musgraves, superintendent of the boiler department of the Prairie Pipe Line Company at Tulsa, spent part of the week in the Bristow, Okla., district.

* * *

H. Jensen of the Spencer Petroleum Company, Chicago, visited the Tulsa offices of the company after attending the American Petroleum Institute meeting at St. Louis.

* * *

E. E. Schock of Okmulgee, Okla., who has spent the past six months in California, stopped in Tulsa en route to his home for the holidays. He was accompanied by Mrs. Schock.

* * *

C. C. Hoffman, who for eight months was superintendent of the Empire Gas & Fuel Company at Smackover, Ark., is now in the company's geological department at Bartlesville, Okla.

* * *

L. S. Johnson of New York, accompanied by A. D. Schendel of the Big Horn Basin country, are on a trip over the Big Horn Basin oil fields in the interests of the Bruce Holdings Company.

* * *

J. E. Huffine, president of the Grandfield Oil & Refining Company of Grandfield, Okla., was in Tulsa last week visiting his brother, E. A. Huffine, and also transacting business for his company.

* * *

D. W. Moffitt, vice president of Cosden & Company, returned to Tulsa Friday from Battle Creek, Mich. Mrs. Moffit, who accompanied him, remained in Battle Creek for treatment at a sanitarium.

* * *

E. D. McCally of Casper, Wyo., district manager of the Parkersburg Rig & Reel Company for the Rocky Mountain region, attended the convention of the American Petroleum Institute in St. Louis.

* * *

Alexander McCoy, Carl Kayser and Gerald Moser, geologists of Bartlesville, Okla., are touring Kansas and Colorado and making an extensive study of the formations with a view to locating likely oil territory.

* * *

E. Call Brown, geologist of the Petroleum Midway Company of Los Angeles, has been engaged by a British Company to make an examination of the prospects for oil in New Zealand. He has obtained a leave of absence and sailed recently with Mrs. Brown for New Zealand.

* * *

B. F. Graham, for several years with the Manhattan Oil Company in Nebraska, has been given charge of the new division sales offices opened recently by the Producers & Refiners Corporation in Omaha. R. W. McDowell, assistant sales manager, opened the new office last week.

* * *

Clinton G. Armstrong, formerly consulting metallurgist for Chicago Flexible Company, and research metallurgist of Western Electric Company, has joined the Calorizing Company. He will serve in the capacity of sales engineer and will be connected with the Chicago office of the Calorizing Company.

* * *

E. W. Clark and L. P. St. Clair, vice presidents of the Union Oil Company of California, stopped over at Cheyenne, Wyo., on their way to the American Petroleum Institute meeting in St. Louis and visited their company's big gas well in Wellington County, Colo., a few miles south of the Wyoming line.

* * *

Capt. John F. Lucey of Houston, Tex., stopped off in Tulsa on his return from the institute convention to further the cause of standardization, in the promotion of which he is enthusiastic. Shortly after his return home he intends to make a trip to California in the interests of the Lucey Manufacturing Corporation.

* * *

C. G. Dorn and Forrest P. Dorn of Bradford, Pa., are making a tour of the Texas oil fields. The latter has been in California and Wyoming, looking around for promising territory that has not been developed. The Dorns, father and son, are large holders of the stock of the Forrest Oil Company, which operates in the Allegany and Bradford Fields.

A party of Canadian drillers left this week via New York for Maracaibo, Venezuela, to drill for the Royal Dutch-Shell. The party included James McHattie of Bothwell, Ont., James T. Smythe of Sarnia, and James Stevens, William Kay, A. D. Brownlee, G. N. Smith, J. A. Brooks, M. A. Evoy, Edward McCort and W. J. Rawson of Petrolia. They will be absent three years.

* * *

C. J. Barkdull, former auditor of the Midwest Refining Company at Denver, has been promoted to auditor for the Standard of Indiana with offices at Chicago. Mr. Barkdull's place at the Denver office will be filled by J. A. Carroll, formerly of Casper, and Mr. Carroll's place at Casper will be filled by Chester L. Kaup, who has been in the accounting department of the Midwest at Salt Creek, Wyo.

* * *

John H. Hudson and E. G. Johnson, rotary drilling contractors of Ardmore, Okla., who are among the pioneers in the use of airplanes in the oil business, flew up to Tulsa from Ardmore, Okla., one day last week, the trip requiring just an hour and a half. Hugh West, another Ardmore oil man, also owns a plane, and F. E. Bernsen, of the Rex Machinery & Supply Company, is seriously considering the purchase of one, having made several trips from Tulsa to Ardmore with Mr. Johnson.

* * *

Oscar C. White, who was formerly connected with the Chicago and Texas divisions of Gustafson & Spencer, Inc., and later manager of the Detroit office of the Indiahoma Refining Company, is in charge of the recently opened Detroit office of the Spencer Petroleum Company. Howard M. Johnson, who was in charge of the refining and lubricating department of the C. A. Gustafson Company, will occupy the same position on the staff of the Spencer Petroleum Company.

* * *

About 300 men, representing every branch of the petroleum industry, attended the first annual banquet of the Sholem Alechem fraternity in Ardmore, Okla., recently. Bill Krohn, oil editor of the Daily Ardmoreite, was elected Grand Crown Block of the organization which, it is hoped, will eventually extend into every oil town in the United States. The other officers in the tour, in addition to the Crown Block, include a Slush Pit, Log Book, Headache Post, Walking Beam, Tool Pusher and Boiler.

* * *

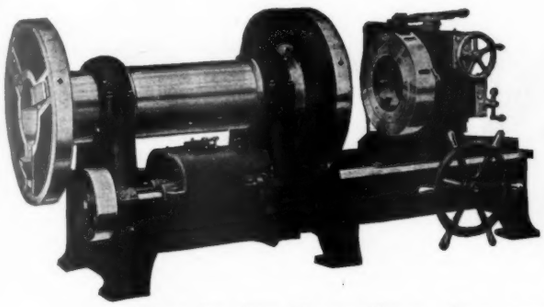
Vern Dumas, who is interested in several companies operating in the southern California fields and who was active in organizing the Blue Tank Pipe Line & Refining Company, was recently elected as special representative of the petroleum industry upon the directorate of the Los Angeles Chamber of Commerce, when that organization sought closer cooperation among the oil men of the district. This action showed appreciation for the work done by Mr. Dumas in developing the Long Beach Field and other California areas.

* * *

Jay W. Wilson of Kansas City, promoted recently by the Standard Oil Company of Indiana and transferred to Chicago, was the guest of honor at several dinners given by friends, co-workers and business associates on the eve of his departure. He was also presented with a silver service and other tokens of esteem. Mr. Wilson started in Kansas City 17 years ago in a minor position and advanced until he was assistant manager in Kansas City for the Standard Company. He now enjoys a like title at the general offices in Chicago.

* * *

S. Nemura, vice president of the Kishi Development Company and of the Orange Petroleum Company, has returned to Orange, Tex., from Japan, where he went in search of his family after the earthquake. He found the family had escaped injuries, but had endured many hardships. Dr. Kishi of Orange, who went with Mr. Nemura, will remain in Japan for a time. He is a brother of K. Kishi, a prominent citizen of Orange County, who organized the Kishi Development Company, operating in the Orange Pool, and which absorbed the Orange Petroleum Company. K. Kishi is also an extensive rice grower. It is believed the Kishi Development Company is the only oil company composed exclusively of Japanese in this country.



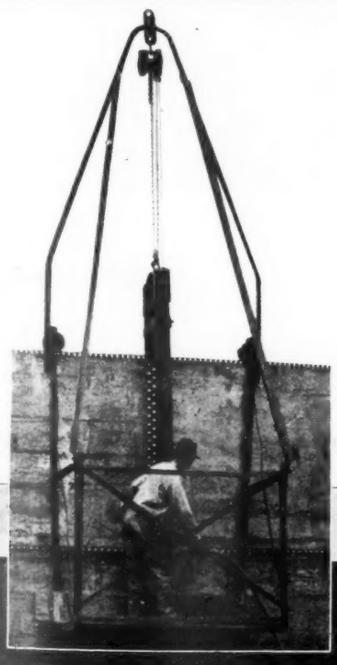
ALWAYS ON THE JOB

Ready for threading pipe any moment from Monday morning to Saturday night—overtime, too, if needed. Continuous satisfactory service in a machine starts in the designing. There is where every little detail is studied with a view of producing a finished machine that will stand the hard knocks. Every part will sooner or later be called upon to stand right up to hard work. The dies, the die adjusting device, the cut-off, the chucks, the oiling system, should all be dependable. B&K machines have that look of strength and bigness that you like to see in a pipe machine.

FORGE AHEAD WITH A BETTER THREAD

SEND FOR A CATALOG

BIGNALL & KEELER MACHINE WORKS
Edwardsville, Ill.



Yoke Riveters

YOKE riveters cost money but they help drive rivets faster and better.

On big jobs they're a time saver that makes money for the buyer, both in cost of the tank and erection time.

Regardless of the size of the contract, GRAVER has the equipment to do the job right. A standardized size for every oil storage requirement gives the buyer the tanks at the lowest possible price in the shortest time.

Get GRAVER quotations on your requirements, we know the price and delivery date will interest you.

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1928 Todd Avenue, East Chicago, Ind.
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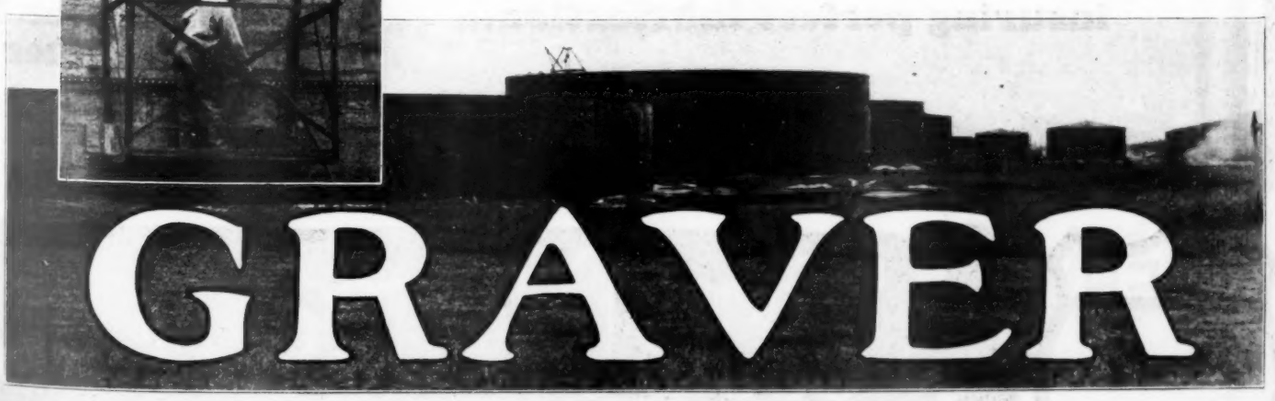


NATIONA

No. 12-C NATIONA UMPI

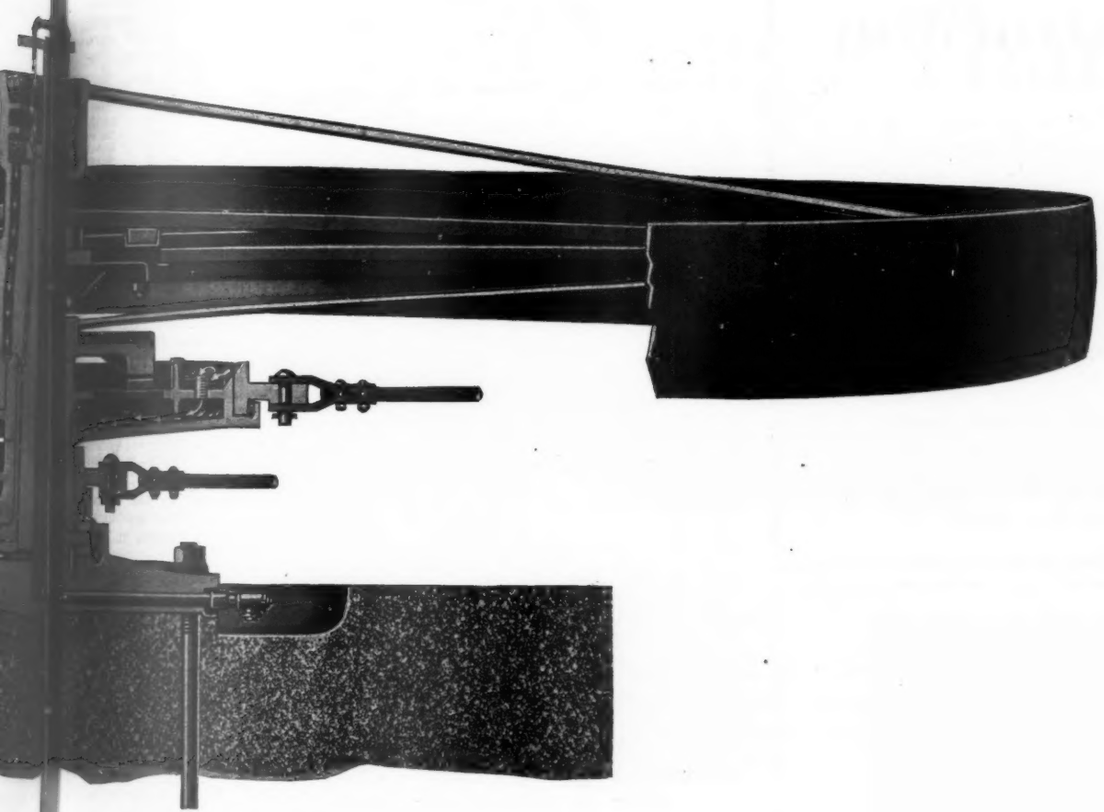
Note flow of oil to all working parts insuring perfect lubrication.

Furnished with a con 18 inch or 24 inc ecc with either 16, 1 r 2 wheels.

NSCO

THE NATIONAL SU P

POWERS



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combination of
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Simple construction permits erection by unskilled labor.

PPLY COMPANIES

NSCO

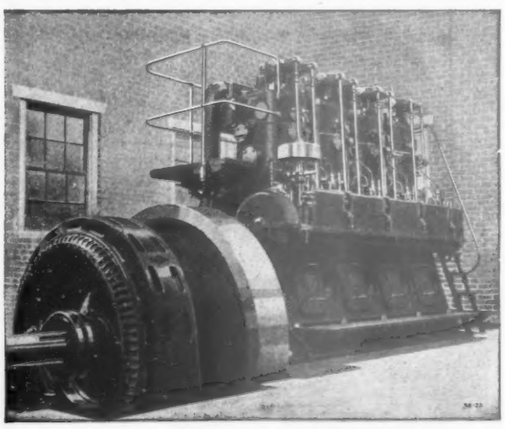
Construction

It will be interesting and instructive to examine the type of construction of a Gantz Tank.

Its simplicity and strength will convince your judgment that Gantz Tanks are several steps ahead. Made from Armco Ingot Iron, covered with high-grade paint and erected to hold the oil.

Bolted and Welded Tanks

GANTZ TANK COMPANY
SAPULPA, OKLA.



Vertical Diesel Oil Engine in Municipal Power Plant

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DIESEL OIL ENGINES

without air compressors

Thirty years experience in oil engine manufacture.

310,000 horse power in operation.

Send for
Bulletin No. 158—Horizontal type "DH" oil engine.
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920 East 138th St., New York, N. Y.

Also Manufacturers of Ice Making and Refrigerating Machines

CANADA'S PETROLEUM CONSUMPTION EXCEEDS ITS INCREASE IN MOTORS

By M. Patton

OTTAWA, Canada, Dec. 24.—Several Canadian provinces are considering the imposition of a tax on all sales of gasoline, and Premier John Oliver of British Columbia, has stated that province will impose such a levy. The tax proposed is 1 cent per imperial gallon. At a recent meeting of government officials, secretaries of boards of trade and representatives of automobile associations held in Toronto, the imposition of such a tax for Ontario was under review, the amount mentioned being 5 cents per gallon. If such a tax were levied in Ontario, it is probable the automobile license fee would be reduced, probably by 50 per cent.

A tax on gasoline, the proceeds to be devoted to the building and maintenance of roads, meets with a good deal of favor on the part of the Canadian public. Another consideration which recommends it is that United States tourists would thus contribute to the upkeep of Canadian roads, over which they travel in increasingly large numbers.

Last year there were 513,821 motor vehicles registered in Canada, nearly half in the province of Ontario. The significance of the proposed tax, so far as Canada is concerned, can be appreciated from a perusal of the table showing the registration by province for the five years, 1918-1922. The increase has been approximately 87 per cent.

MOTOR VEHICLES REGISTERED IN CANADA BY PROVINCES, 1918-1922

Province—	1922	1921	1920	1919	1918
B. C. and Yukon	34,612	32,900	28,000	22,420	15,370
Alberta	40,642	40,235	38,015	34,000	29,300
Saskatchewan	61,367	61,184	60,325	56,855	50,631
Manitoba	42,200	40,215	36,455	30,118	24,012
Ontario	240,933	206,521	177,561	144,804	114,376
Quebec	61,995	54,670	41,562	33,547	26,397
N. B.	13,746	13,615	11,196	8,306	6,434
N. S.	16,159	14,205	12,450	10,210	8,190
P. E. I.	2,167	1,751	1,419	967	619
Total all Canada	513,821	465,296	406,983	341,227	275,649

Gasoline consumption in Canada has increased even more rapidly than the number of motor vehicles. No statistics are available showing the exact amount of gasoline consumed, but by adding to the amount produced in the country the number of gallons imported and deducting the exports, a reasonably close approximation is secured. In the calendar year 1922, the production amounted to 143,959,839 imperial gallons valued at $34,428,189 to which is to be added imports of 28,645,479 gallons. Deducting exports of 1,976,244 gallons, gives the total consumption for the year as 170,629,128 gallons. This compares with 75,206,521 gallons in 1918, an increase of 127 per cent in the five-year period.

On the other hand during the same period the consumption of kerosene until 1922 has scarcely held its own, standing at 68,563,512 gallons in 1918 compared with 68,096,012 gallons in 1921 and 78,722,847 in 1922. A slight increase is shown in the case of lubricating oils. Of these in 1918 there was used 19,702,162 gallons whereas in 1922 the figure stood at 24,295,057 gallons.

The following table shows the consumption in Canada of gasoline, kerosene, and lubricating oils each year from 1918.

Consumption of Gasoline, Kerosene and Lubricating Oil in Canada, 1918-1922
(In Imperial Gallons)

Year	Gasoline	Kerosene	Lub. Oil
1922	170,629,128	78,722,847	24,295,057
1921	139,543,329	68,096,012	22,385,565
1920	94,548,776	67,883,829	22,450,692
1919	90,073,313	59,271,188	21,894,644
1918	75,206,521	68,563,512	19,702,162

Apportioned according to the motor vehicle registrations the consumption of gasoline by provinces in Canada in 1922 was as follows:

Gasoline Consumption in Canada in 1922 by Provinces
(In Imperial Gallons)

British Columbia and Yukon	11,493,894
Alberta	13,496,314
Saskatchewan	20,378,631
Manitoba	14,013,692
Ontario	80,008,349
Quebec	20,587,178
New Brunswick	4,564,744
Nova Scotia	5,366,948
Prince Edward Island	719,611

OUTPUT OF GAS IS TEST OF EFFICIENCY

(Continued from Page 58)

well, because this factor takes into account both oil and gas productions. The most efficient well is the one operated so as to produce the minimum amount of gas per barrel of oil.

Flowing wells through tubing is recommended. Operators in the new southern California fields have found it advantageous to produce large flowing wells through tubing, even from the time they are first drilled in. Wells flowing up to 4,000 barrels per day are being produced through 3-inch tubing in these fields, while 1,000 to 2,000 barrel wells are flowed through 2-inch tubing. The gas factors of oil production of some of these wells of 2,500-barrel daily production or even more are as low as 640 feet per barrel, which is lower than the gas factors of some other wells flowing through casing, on which records are available.

It is believed that a great deal of effective work in increasing the recovery of oil may be done by skillful manipulation, so that each foot of gas may be utilized to lift the maximum amount of oil to the surface. Flowing wells through tubing with the tubing packed off at some certain level in the well, not necessarily at the top of the sand or at the casing head, and regulation of the flow, controlled by experiments involving the measurements of oil and gas, should result in increased production efficiency. Devices to flow wells on their own gas pressure, even after they have declined in rock pressure to relatively low levels, will doubtless be developed. Such devices combine efficiency of operation with low lifting costs.

DRILLER IN COLOMBIA WRITES EXPERIENCES

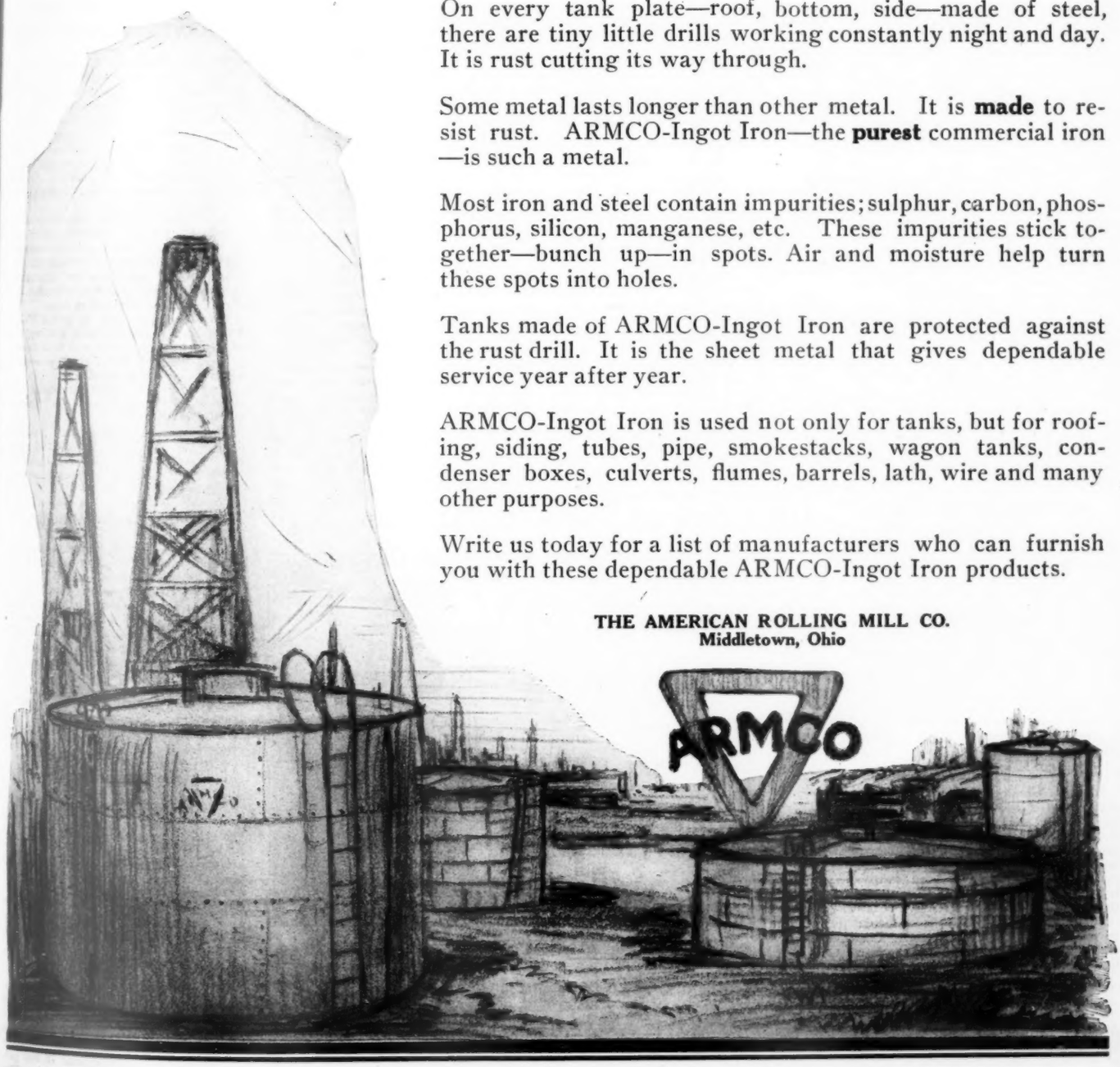
CHATHAM, Ont., Dec. 22.—Writing from Colombia, South America, G. W. Currie, formerly of Petrolia, Ont., tells of conditions in that field, where he is working for the International Petroleum Co. He says:

"We landed at Cartagena and from there came 60 miles by train and then 420 miles by river boat. The trip took us seven days. I am located in Barrancabermeja. Later I may be sent out to Infantas, another large camp of the company here. I like this place very much. In fact it is much better than I had expected. We have very nice sleeping quarters, and the food is fine. There are about 200 men in this camp and about 10 white families. The ladies here are very sociable, go to their homes three or four times a week and play bridge. We have electric lights, running water, ice, shower baths, and everything one gets north and all the plant equipment is the very latest. We work 8½ hours. We work from 6:30 to 11:30 and from 1 till 4:30. We have a very good club, reading room, dance hall, pool room, etc. Am going to turn out with the ball team here. I have been practicing some, and the warm climate seems to loosen up the old bones."

ARMCO INGOT IRON

TRADE MARK

Tanks Last Longer Than Others



On every tank plate—roof, bottom, side—made of steel, there are tiny little drills working constantly night and day. It is rust cutting its way through.

Some metal lasts longer than other metal. It is **made** to resist rust. ARMCO-Ingot Iron—the **purest** commercial iron—is such a metal.

Most iron and steel contain impurities; sulphur, carbon, phosphorus, silicon, manganese, etc. These impurities stick together—bunch up—in spots. Air and moisture help turn these spots into holes.

Tanks made of ARMCO-Ingot Iron are protected against the rust drill. It is the sheet metal that gives dependable service year after year.

ARMCO-Ingot Iron is used not only for tanks, but for roofing, siding, tubes, pipe, smokestacks, wagon tanks, condenser boxes, culverts, flumes, barrels, lath, wire and many other purposes.

Write us today for a list of manufacturers who can furnish you with these dependable ARMCO-Ingot Iron products.

THE AMERICAN ROLLING MILL CO.
Middletown, Ohio

EQUIPMENT AND SUPPLIES

IMPROVEMENTS MADE IN AIR COMPRESSORS

Several new improvements in the angle compound belt driven air compressors are announced by the Sullivan Machinery Co., of Chicago. Among these are the "wafer" air valves, which are now used on all sizes of these compressors, and the three-pass counter current intercooler, formerly employed only when specially ordered, to secure extra efficiency, but now a standard feature of all of the seven-unit sizes of these machines which range from a capacity of 450 to 1,700 cubic feet of free air per minute in the single units, and in the twins up to 3,700 cubic feet. They are good for working pressure up to 120 pounds.

The new differential valve water drifting drill, Class "DW-64," which the company has had under test for more than a year, is also announced, in a bulletin issued this month, as thoroughly tried out and as having increased speed, convenience and air economy over drills weighing from 40 to 100 pounds more. Only one man is required to operate this 130-pound machine, although it is designed for heavy as well as light tunneling and drifting work and in actual practice is reported to have been able to handle long holes and heavy steel in all kinds of ground. A number of these drills have been scattered around the country for experimental purposes under actual conditions but they are just now being put on the market generally.

The Sullivan portable gasoline engine-driven air compressor, Class "WK-311," has been redesigned, increasing its capacity to 170 cubic feet displacement per minute. A new transmission has been provided, consisting of a simple and substantial gear reduction, to cut down the engine speed to that suitable for compressor operation. Only 31 H. P. is required to operate the compressor at full speed and pressure and this leaves a substantial margin of power in the Buda 4-cylinder engine which is retained.

BESSEMER GETS ORDERS

The Bessemer Gas Engine Co. of Grove City, Pa., is completing the installation of its new engine equipment at two new natural gasoline plants in the Tonkawa Field of Oklahoma. Six of the new Type 10, 80-H. P. compressor engines are being installed in the Wentz & McCaskey plant and three of the same type at a plant of the National Products Co. Both plants will be in operation about the first of the year. The Bessemer company is also installing two of the same type engines to be used as vacuum pumps by the Gulf Production Co. in the Breckenridge Field of Texas.

NEW PUMPING JACK

A new pumping jack with a 6-inch beam has just been put on the market by the National Supply Co. It is known as the No. 4 National, and is designed for deep wells, being in reality an extra large size of the Oklahoma jack. A special Max jack frame has been designed for it and the jack can be furnished with this frame. One of the No. 4 type equipped with a Max frame is on display in the window of the National's Tulsa office. The first shipment was received in Tulsa last week.

AGENCY IN NORTHWEST

The General Machinery Co., of Spokane, Wash., has been granted the agency in the eastern part of the State of Washington and the northern part of Idaho for the Chicago Pneumatic Tool Co. of New York.

POSSIBILITIES OF STEEL REDUCTIONS HAVE BEEN VERY LARGELY REMOVED

By B. E. V. Luty

PITTSBURGH, Pa., Dec. 24.—The entire steel market has undergone a further stiffening in the past week. There has been no great change, but this progressive stiffening has now continued for several weeks and the cumulative effect is that the market is decidedly stronger than when it was at its most uncertain stage. Possibilities of prices declining in the near future have been very largely removed.

At no time has there been any definite expectation that tubular goods, wire products, tin plate or, of course, rails, would decline. For a while there was a question about sheets, but they have been stiffening and are not regarded as on safe ground. At one time the preponderating opinion was that bars, shapes and plates would decline, but now the chances are regarded as slim that even they will decline.

The idea of the steel mills is that if they can hold their position through the winter, with its lighter demand, buying will begin in the early spring, or say in March, in such volume that the market will then take care of itself. Price cutting is usually caused by some mills having a light operation for a time, say 50 or 60 per cent, but if the mills that would be disposed to cut cat seen better selling prospects ahead they may be disposed to hold out.

Foresee Increased Operations

By the first of this month steel ingot production was down to 37,000,000 tons a year, or less, against a rate of 49,000,000 tons at the top, last April. On the basis of estimated capacity the operating rates for the steel mills as a whole were about 93 per cent in April and a trifle under 70 per cent at the beginning of this month, with the Steel Corporation running well above 70 per cent and the independents, as a class, somewhat below 70 per cent. Operations are lighter this week, but that means nothing as to the general trend, since some plants are closed entirely, for repairs, and there is a temporary dip in production in general because since the first of the month not a few buyers have been sending in their orders with instructions not to ship until after January 1. The universal prediction is that mill operations will show a decided increase in January. There may be an average of around 75 per cent in January and February, pointing to gains in March and April. If such improvement does not occur it will be fairly conclusive proof that the present claims as to the state of trade and the present predictions of improvement are not well founded.

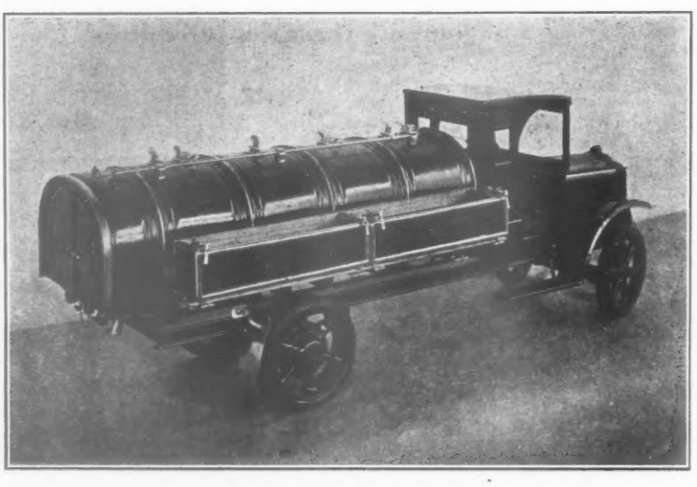
Besides the increase in buying in the past week or 10 days, largely in orders that are not to be filled until after January 1, there has been a little contracting for first quarter, not amounting to a great deal in point of tonnage but enough to show that there are some buyers with confidence in the future of the steel market.

Oil Country Goods

Demand for oil country tubular goods is now very light, but the pipe mills fully expect the demand to come back in fairly good shape in the early spring. The pipe mills are convinced that as to production, stocks, etc., oil has fully rounded the turn and that within a few months drilling will be fairly active. As to line pipe, there have been no large orders recently and none are in sight, but all told there has been a fair business in lots of a few miles at a time, up to 8-inch and 10-inch. Demand for merchant pipe, chiefly in butt weld sizes, continues good, with jobbers practically bare of stocks and likely to replenish after the turn of the year.

Tin plate production in the first 11 months of the year was about 35,000,000 boxes, equal to the calendar year record made in 1917, and indicating that this year as a whole will beat the record by say 8 per cent. There has been heavy buying by the oil companies for the first half of the new year, as well as by makers of packers' cans, and the present outlook is that another new record will be made next year in tin plate production. The market is very firm at $5.50. There is no activity reported in oil storage tanks.

A WORTHY SCION OF A NOBLE BREED



Many oil men who attended the meeting of the American Petroleum Institute will recall the tiny specimen of truck tank reproduced here. It is said to be the smallest real working truck tank ever built. In everything that goes to make a fine truck tank this miniature is strictly up to the standard set by its full size brothers. Every part and member of it is made to scale to fit a model of a White truck and each working part is an exact reproduction of that part in a full size tank. Even the faucets and the emergency valves with their mechanism function perfectly. This tank was made up on the order of P. C. O'Connor of the Petroleum Division of the White Co. and in his possession was the sensation of the Petroleum Institute. Its capacity is three and a half quarts. The truck was manufactured by the Columbian Steel Tank Co.

EXCLUSIVE RIGHT FOR HEAT-ENDURING ALLOY

The Calorizing Co., Pittsburgh, has acquired exclusive sales rights for Hybnickel, the heat enduring alloy perfected by Victor Hybinette. The arrangements which make this announcement possible provide a single source for all that has been developed by the Calorizing Co. and Mr. Hybinette working independently. In addition, the production facilities of both organizations will be preserved.

As a direct result of this union of interests, it becomes possible immediately to quote lower prices on heat-enduring castings, to offer service through the Calorizing Co.'s representatives throughout the country, and to insure a prompt supply of large or intricate castings.

Hybnickel will now be called Calite. The original analysis Calite will continue to be supplied to those who have become accustomed to it and for whose requirements it is best adapted.

Mr. Hybinette will be associated in a consulting capacity with the Calorizing Co.

The company offers data outlining many uses for Calite castings and showing the usefulness of the alloy under the continuous influence of temperatures up to 2,100° F.

ORDERS FROM ABROAD

Three orders from foreign fields in one morning was the pleasant experience enjoyed by Morris Brothers, of Robinson, Ill., recently. One was from India, another from Sumatra and the third from Venezuela. There is not an oil field in the world that does not have some equipment furnished by Norris Brothers, according to officials of the company, and quite an export business has been built up on No.-Co.-Ro balls and seats, and also on Nor-Bro stuffing boxes, as well as other oil well pumping equipment. They claim that the sun never sets on their products.

MISSISSIPPI TEST

OKLAHOMA CITY, Okla., Dec. 23.—L. H. Prichard, of the Anderson-Prichard Oil Corp., has gone to Clarksville, Miss. to be present when a test is made of an oil sand found in a well near that place. The sand was found at about 2,600 feet and the casing was set at the top of the sand. It was drilled by a local concern at Clarksville. The location is about 75 miles south of Memphis.

NEW COMPOUNDING PLANT

WICHITA, Kans., Dec. 23.—The Kansas-Texas Oil & Refining Co. of this city has practically completed the installation of a new compounding plant here. With the new equipment the company will be able to handle around 75,000 gallons of lubricating oil per month. The plant uses Pennsylvania oils.

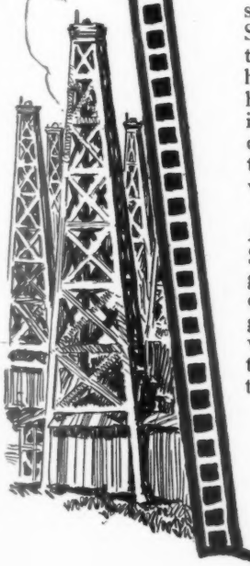
The "Great Spirit" of the Mid-continent Oil Fields

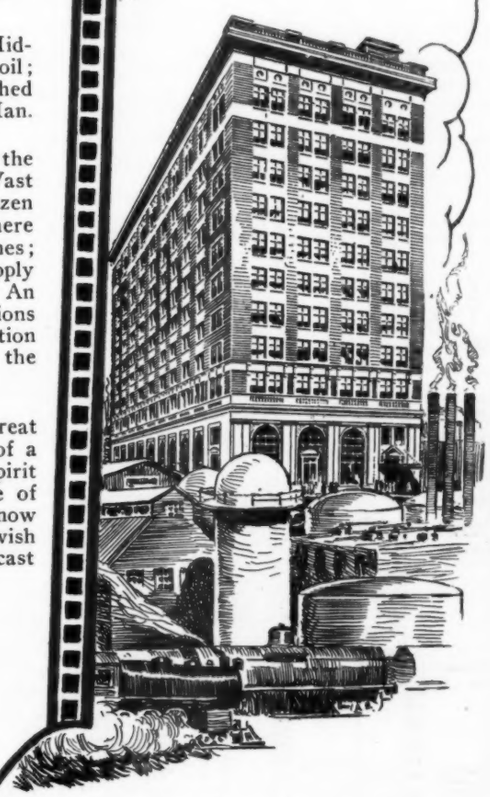
The Prophet Sought by the Oil Industry for Advice on Credits

Years ago; when Oklahoma, the Great Mid-Continent Oil Fields of today, was virgin soil; tradition has it that the great spirit breathed a prophecy of untold riches for the Red-Man.

Today the prophecy is fulfilled beyond the dreams of the wildest imagination. Vast stretches of territory embracing half a dozen States is dotted with clumps of derricks where the drill has touched. Railroads; pipe lines; highways; refineries; tank farms; supply houses have followed in the wake of oil. An industry with millions invested; more millions derived; more millions constantly in action through the interchange of business in the world of oil.

And today, in the Oil Industry the "Great Spirit" is still present. It is the spirit of a great bank—a bank breathing the very spirit of oil—all knowing, all seeing—a source of guidance and help to those who MUST know whose credit is good and to those who wish the goodness of their credit to be broadcast to the world.





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EXCHANGE BANKS OF TULSA

The Exchange National Bank — The Exchange Trust Company

Combined Resources Exceed Forty Million Dollars

Wildcat Development Work in Arkansas

Topographical Features Described With Other Data of Interest to Those Contemplating Entrance Into That Area

By Frank P. Peterson

The purpose of this article is to bring out and inspect the elements of choice or selection of an area for wildcat search and to throw as much intelligent light on a sizeable area in Arkansas, heretofore considered promising, as possible for the guidance of those who may become in the future interested to see it give up any oil it may hold and extend the coastal region of productive area.

We may begin with our own undertaking, anayzed as to its elements of oil prospect from inspection of the surface as an example of work done so far, and we may go further and assemble and apply all the sub-surface data that can be had, both of past and accumulating development, for what suggestions of value may be obtained therefrom.

On assembling the exposures of stratification of the bedded clay shales, we found we had an absence of suggested closure to the northward of north-northwest, up the Tulip Creek bottoms. The east limb of drainage, White Oak Creek, makes a pronounced elbow circuit to the north of the Section 12-10-16 area.

Topographical Features

In the southwest quarter of Section 2, of the southeast quarter of Section 3, a peculiar surface deformation occurs, which is suggestive merely, and could not, we realized, be taken too seriously. White Oak Creek has a southwestward course here. It is normally a shallow sluggish little stream, having a width of from 10 to 15 feet and a depth of less than 3 feet, averaging nearer 15 inches than more. At the point in description, the creek widens out to a probable average of nearly 40 feet and the depth increases to a maximum of 10 feet or more for much of a distance of 250 yards. Abruptly, at the upper and lower ends of this stretch, which is called a lake, White Oak resumes its normal aspect and dimensions. Marked by plentiful fragments of a ferruginous sandstone sheet, the nose of a long ridge on the north side of which our well was located in Section 12, breaks abruptly down to the creek bottom level through a vertical distance of 30 to 40 feet, I should judge, and is steep enough in places to be a little difficult to climb without grasping the brush. This point is indicated clearly on sketch plat, Fig. B, and is opposite the lake. This is quite exceptional configuration for the east side approach of the highlands to the creek bottom area, and we gave it casual consideration as possible surface demarkation of the northwest boundary of structure area.

This portion of the country is included in the U. S. G. S. "Camden Quadrangle" Topographic survey, and I have indicated, in Fig. B, in dotted lines, the contour of the ridge mentioned, which is pronounced for a distance of 2 miles or more in a northwesterly direction from the main high area in the southeast of Section 12 and northeast of Section 13, in Township 10-16, and corresponding south of 7 and most of 18 in Township 10-15. This topographic high area in Sections 12, 13 and 7, 18 was included in Dr. N. F. Drake's recommendation for a test well location, while F. J. Fohs' contours would have indicated a location somewhat further eastward, probably in Section 7-10-15.

Question of Dip

Principal dip positions of the bedded clay materials are noted in Fig. B at (a), (c), (e), (f), and (h), while (b) is at a position on the west bank of Tulip Creek, described by Dr. Branner in his Arkansas Annual Report, Vol. 2, for 1892, as follows:

"On the right bank of Tulip Creek, not far below the junction of its east and west forks, there is a low bluff of undurated and concretionary sandstone. The upper portion of the bluff, which is about 15 feet in height, consists of loose yellow sand layers, separated by bands of thin, firm, ferruginous, sandy clay. Below, the material is more indurated and is formed into concretionary masses of from half a foot to 10 feet in diameter." The dip measured here was in the vertical position of the "concretionary masses" and its reliability as a strata indication is in question in the writer's mind, and, although no less than five men have checked it in my observation, it is an indication of what the power of suggestion may be, when that suggestion may emanate from the mind of a good man, well recognized in the branch of art of science in which he may shine. (I have reference here to the expression of Fohs as the first to have noted and mapped this dip). Naturally, I realize that I am exposing myself to severe criticism in thus injecting my own immature observation, but on inspection of the "lower part of this bluff" mentioned by Dr. Branner, which is exposed in the old mill-race when the water is low, confirms rather definitely the opinion I have dared to venture. We are forced to the conclusion that the dip (b) should be rejected.

In the south half of Section 15 we have an elevated point. U. S. G. S.

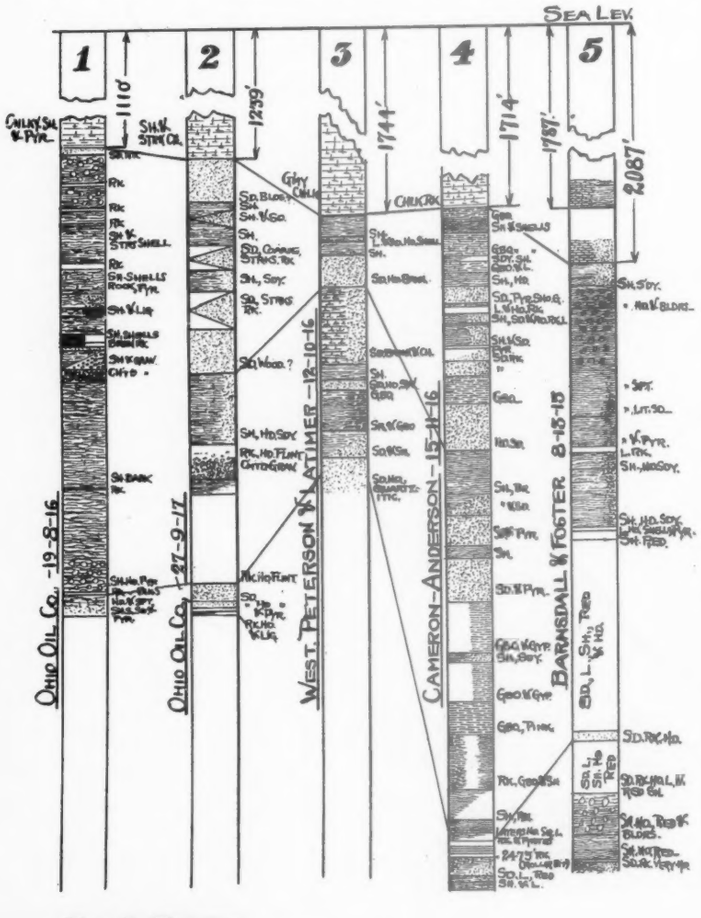


FIG. A. REFERRED TO FIG. B. FOR CROSS SECTION.

VERTICAL SCALE: 1" = 100'

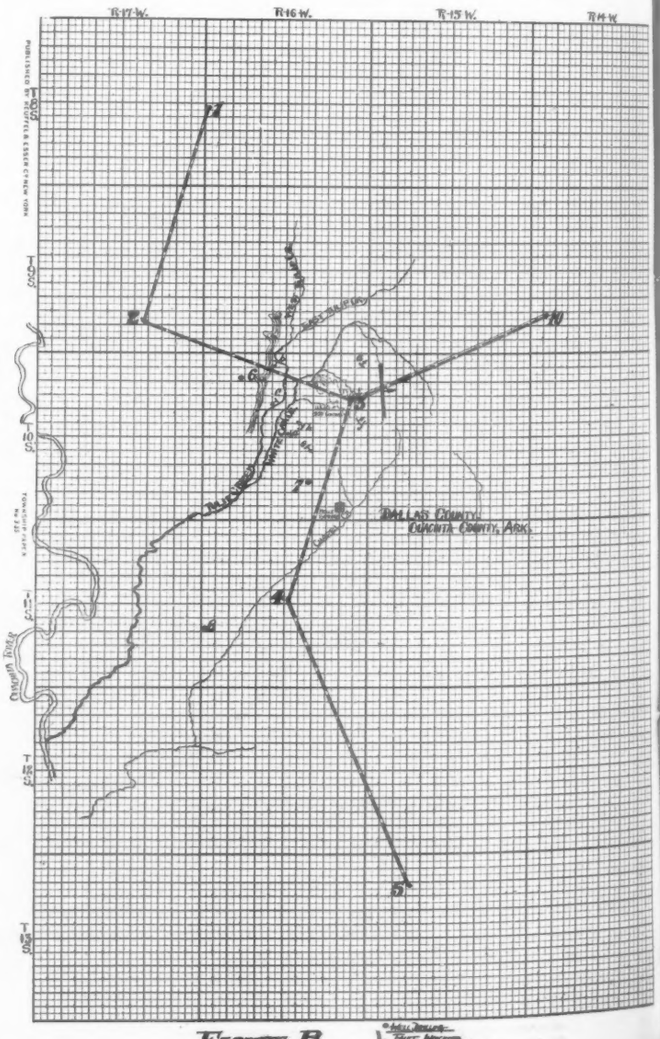
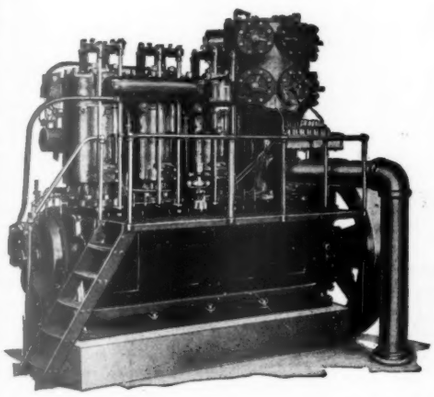


FIGURE B.

The Reeves Vertical Gas Engine—Compressors For Gas Booster Plants



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Engine-Compressor Sizes:
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All Compressors equipped with "Hope" Biplane, Patented, easy operating, high speed Valves.

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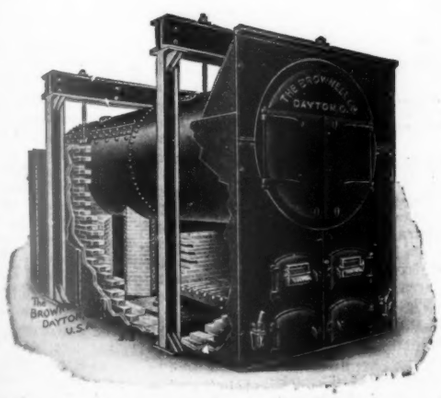

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BOILERS

topography would indicate that it must be in the extreme southeast corner of the section, and I am inclined to think a high knoll which would approach 300 feet elevation is not mapped. This point carries an exposure of ferruginous sand rock, resembling, very much, that at which the dip above detailed was noted. Its elevation, according to hand level estimation, and also to quadrangle topography, must be in excess of 100 feet more than that at the creek bank. We were unable to obtain an expression from any of the geologists who inspected the ground of opinion that this high exposure of the iron sand rock might reasonably be identified as the same as that at the Tulip Creek bank in Section 4. No such hard layer of sand rock was encountered in our well at any depth which could reasonably place it in a horizon with the creek bank exposure, however, and its thickness at the creek bank (observable) and at this high point in 15, and very probably in Section 2, (assumed only) should indicate that it ought to be too persistent to pinch out in the short distance between the two points, our well and Section 4. Be this as it may, the group of dips noted in Sections 15 and 22, if they may have any significance whatever, are not to be lost sight of, if attention should again be centered on this area for exploration.

Two more details of general and pertinent interest are to be noted. The drainage plan is indicated in Fig. B only partly. In addition to the main creeks and smaller brooks shown, a belt range of living fresh water springs have their outflow direction south, southeast and east, beginning at the south and going in the order named around to the northward of the area, where they change direction and course to flow to the north, northwest and west, seeking White Oak and Tulip lowlands as their outlet. Summarized, this says our area is a water shed, domal in its general aspect.

The second of the last named two general features is a well defined indication of faulting situated in the west center of Section 7-10-15 and striking north and south or slightly west of north and east of south, exposed to view by a tramway grade cut, and which was not visible or known to exist, before about January of this year.

Features Shown by Cut

The exposure does not differ very materially from many similar ones in this part of the State. Beginning along a cut of some three to four feet depth and in the west part of Section 7, the first observed evidence is a striated appearance of the gray sand of the bank of the cut. Close observation is called for to detect the exposure, which is quite unmistakably defined in its nature, and after a rainfall is more pronounced in its evident formation. Moving eastward, along the cut, some 300 yards, one comes to a cross-cutting hummock in which banded clay shales appear in an irregularly warped fashion, but well defined. Further eastward, in the main cut, is the well pronounced position of clay-shale bands standing out strongly in color contrast and dipping eastward at an agle with the horizontal of about 20 degrees.

The contours plotted in this area take no cognizance of the existence of the disturbance and, indeed, only the railway excavation has made any hint of its presence known. Local evidence, other than that visible in the cut, to the effect that the exposure marks a definite change of surface formation was in the fact that water wells to the westward, in Range 16, find uniformly plentiful supply at depths ranging from 13 to 40 feet. About the center of the south line of Section 7-10-15, a well was dug to a depth of 58 feet. Not enough water was found to supply the requirements of a small family. This well is very likely in the plane of faulting. To the east, in the south half of the northeast quarter of Section 18, the farm owner dug the third well, finding impenetrable rock at a depth of 13 feet in the first, at 42 feet in the second, and secured plentiful supply in the third at a depth less than that last given. These wells were not more than 30 yards from location to location.

Reference to Well Logs

The foregoing, which is a resume of the summary of observations at the surface as affecting, and in support of, the selection of the location in Section 12, which we drilled, may now be supplemented by inspection of the sketch, Fig. C, which is a subsurface cross-section along a line intersecting wells 2, 3 and 10, Fig. B.

Reference to well logs graphed in Fig. C will be by numbers; 2 is the Ohio Oil Co.'s Taylor well in the southeast corner of Section 27-9-13; 3 is West, Peterson & Latimer's Eagle Lumber Co. No. 1. northeast corner, southwest quarter of Section 12-10-16; 10 is Heilbron Oil Co.'s Eagle Lumber Co. No. 1, northwest corner of the southeast quarter of Section 30-9-14. A surprisingly satisfactory correlation is at once seen between

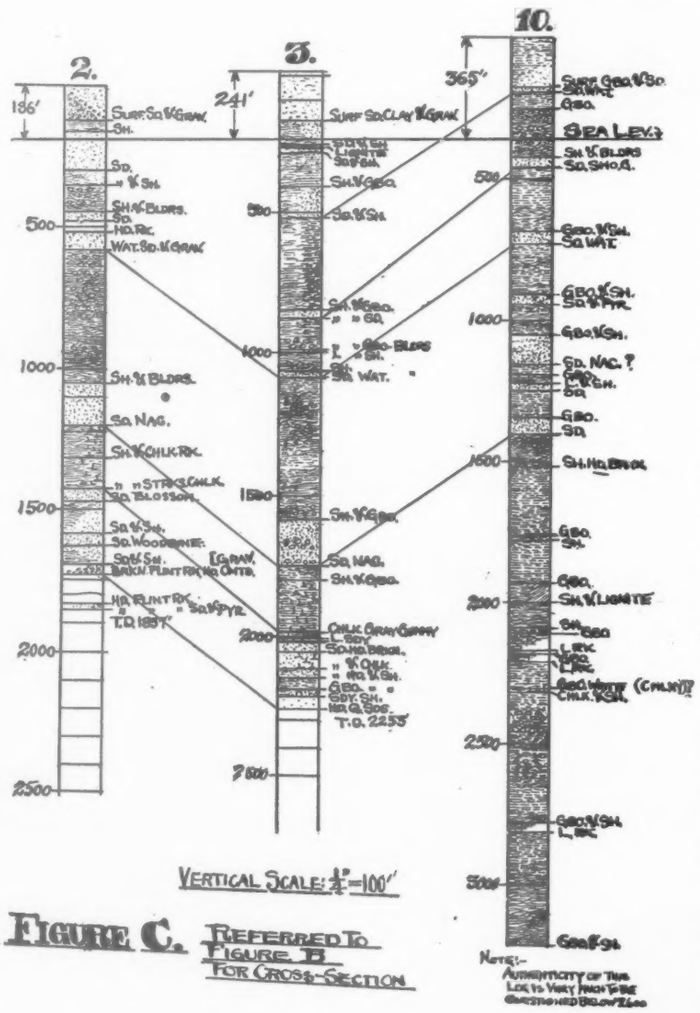

FIGURE C. REFERRED TO FIGURE B FOR CROSS-SECTION

logs 2 and 3. As between 3 and 10, the case is altogether different. There is such obvious change of formation that one is left completely at sea as to whether any definite correlation may be established.

D. T. Ring was courteous enough to suggest to the writer a probable south 30 degrees east normal trend of the stratum here of 40 feet to the mile. If this be the case, well 10 should carry its subsurface formations approximately 40 feet below those correlated of 3. Considering, first the water sands and using those as a key suggestion for tying together the group of sand horizons, we get a fairly satisfactory arrangement. With reference to the horizon in 10, which should correspond to that of the position of the Nacatoch in 3, we must use either the group of members falling between 1,052 and 1,400 feet in 10; or limit the effort for correlation to the upper sand member between these depths having its bottom at 1,160 feet and call it Nacatoch. Taking into account the lime-shale member intervening below the latter and the next lower sands logged in 10, and noting its apparent relationship to the chalk and lime horizon below the Nacatoch in 3, it would appear that this is the more acceptable assumption and that we might reasonably so define the Nacatoch horizon in 10. If so, confirmation is evidenced, strongly, of fault indication in Section 7-10-15 and the displacement amounts to something in excess of 500 feet between positions of 3 and 10, a distance of a little more than 7 miles. Not only is this true, but in the case of 10 there occurs a lignitic horizon at 2,000 feet depth, two or more boulder horizons have disappeared entirely, the percentage of gumbo formation has greatly increased, and, to the reasonably known depth to which 10 was drilled, it would appear that no suggestion of the presence of the Paleozoic materials was encountered, and, therefore, 10 penetrates an area of such marked change of formation that it may be considered from angles new and foreign to that area along and to which the sectio nof Fig. A is referred.

What Cross Section Shows

Naturally, it is difficult to attempt correlations across distances as great as these and a further difficulty of the lack of familiarity on the part of the writer with the terminology of the rotary driller may hinder a perfect interpretation, and, therefore, a correct correlation, which would pass reasonable criticism from those better qualified.

Let us refer to another cross-section which has a north-south course by inspection of Fig. A. Beginning at the Ohio Oil Co.'s test well at Manning, in 19-8-16, and traversing the positions of the other wells noted in Figures A and B, we have used that portion of the logs falling below the bottom of a persistent chalk member identified, it is thought correctly, in all but the fartherest south location of Barnsdall & Foster's Freeman Smith Lumber Co.'s No. 1, in Section 8-13-15, for the purpose, mainly, of studying the features of conformity in the more important members of the lower formations penetrated by these wells. The points in the section at which the observations may be taken, are at an average distance of more than 8 miles apart. Within such a reach, of course, great variance in formation may be expected to occur, but a study of the section leaves much, to the writer's mind, to be desired in support of any conclusion that even subsurface deductions here may be very helpful in guiding the effect for further exploration with the drill.

As between locations 1 and 3 (Fig. A) such unconformity exists as to suggest the presence again of faulting. Indeed this evidence is borne out to the extent of sharp folding at least in log notation of a core at 1,880 feet, showing a dip of 35 degrees in well 1. Whether or not the evidence of faulting may be observed at the surface is much to be questioned since much, if not all, of the intervening area is blanketed by a sheet of gravel (termed Port Hudson by Fohs) and, as a rule, this would effectively preclude surface evidences of any marked disturbance. As between the positions of 2, 3 and 4, there appears possible a rather definite correlation of one prominent sand member, named as Woodbine, in 2, and, if continuity of the member may be established, its sharp upthrust in the position of 3 leaves room for the suggestion of further exploration in the vicinity where this occurs. The most interesting feature of the study, however, is the bringing out of evidence of a submerged Paleozoic area in the nature of a ridge or buried mountain in a north-south trend and elbowing out to a southeasterly extremity, limited, probably within the reach of the drill, somewhere down in southeastern Calhoun County. Development of the recent several months is bringing near at hand the definition of its eastern flank, while the western may remain longer undefined by reason of Ouachita River Valley surface conformation.

Indications of Cross Folding

Against the east flank of this interesting and yet undefined sub-surface upthrow of the old material should be a good place for oil accumulation, if cross folding exists, and nothing as yet suggests that it does not, in favorable conformity, thus leaving southeastern Dallas, northeast Ouachita and northwest Calhoun Counties as yet wholly unexplored, favorable ground for further test effort.

The writer is pitifully deficient in interpretative knowledge of the character and Columnar position of the formations encountered in 3, and to Dr. F. H. Lahee's perception of the existing fact is first credited the absence, noted by him, of the Lower Cretaceous and probably the lower members of the Upper, in the location of this well.

Thus, it develops from retrospection with reference to our selection of location 3 for test that so far as detailed reconnoissance is concerned in this particular area, the geologists were confirmed in their analysis of surface indications as they were referred and related to the lower levels penerated, and upset completely with reference to the upper levels, if the main sand member thereof has been correctly identified. Early in the course of our progress, when we had penetrated a water sand at 1,061 feet, some mature heads in the fraternity were ready to venture the suggestion it might be regerred for correlation to the Nacatoch horizon, but this seems hardly acceptable in view of deeper findings. In any event the "Basement Rocks" of the Paleozoic were encountered at a depth

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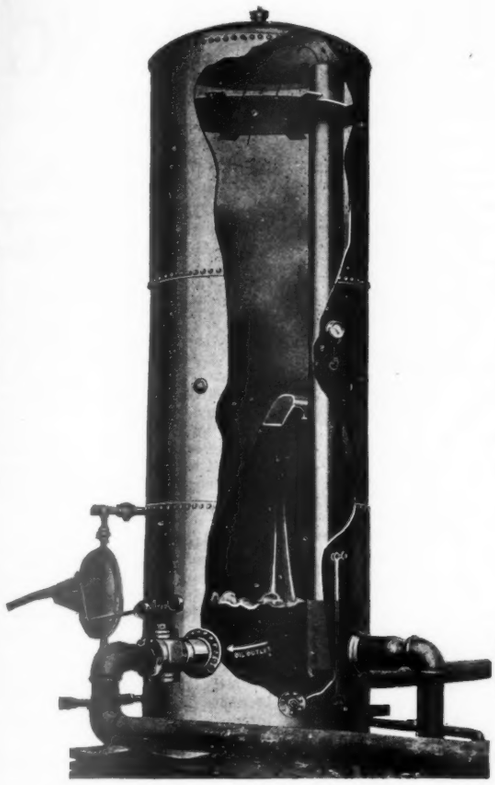

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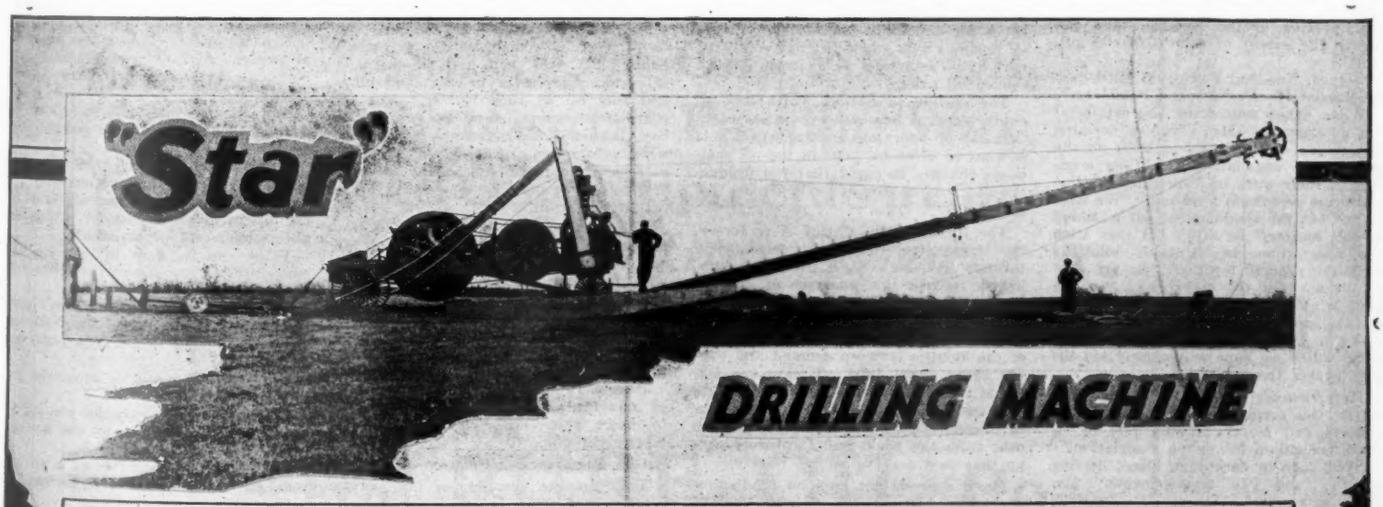

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REFINING AND MARKETING SECTION

N. P. M. A. Offers Contract Gasoline To Its Membership

By Ralph T. Baker

CHICAGO, Dec. 24. — The National Petroleum Marketers Association promises to become a big factor in the handling of petroleum products during 1924 if recent steps can be taken as an indication. L. V. Nicholas, president of the organization, announced Friday that the association had available for its members 10,000,000 gallons for shipment over 1924 and a like amount for 1925. His official statement was as follows:

"There has been more or less conflict of statements and misunderstandings relative to a deal this organization has for marketing to its members approximately 10,000,000 gallons of Cosden & Co. gasoline for the years 1924 and 1925.

"For the purpose of clearing up wild rumors, we desire to say that this gasoline was obtained by the association through the Northland Oil Co., C. L. Maguire, president, and covers gasoline which we have the privilege of offering to our members in the Standard of Indiana territory.

"It was contracted by them through the Taxman Refining Co. of Chicago some time about the middle of last October and we are today issuing a circular letter to our members in the Standard of Indiana territory, offering them whatever portion of the gasoline they can use to the extent of this 10,000,00 gallons.

"Signed, National Petroleum Marketers Association, L. V. Nicholas, President."

When asked concerning the details of the arrangement, Mr. Nicholas declared it was one of a number of steps on the part of the association to aid its members in their work of dispensing gasoline and other petroleum products. "We wish to test out the sentiment of our members in this matter," he said. "If they wish the association to establish relations with the refiners for them, we are glad to do so. On the other hand, we are glad to aid the refiner in eliminating the middle man, should he desire to ship direct to the jobbers. It is one of many steps which we hope will greatly aid the members of the association."

Mr. Nicholas asserted that the association was acting as contact between the refiners and jobbers at the rate of ⅛ cents per gallon fee to the association.

"We hope to encourage direct dealing by this and like arrangements," Mr. Nicholas asserted. "The gasoline involved in this deal stipulates New Navy in the winter and 56-58 450 end point in the summer. We have had several offers from members of the association who wish to take advantage of the proposition, following publication of the report that it was on hand.

"The gasoline will be available to members of the association on marginal contracts over 1924 and 1925. The association has no ax to grind. The added income from the sale of the gasoline will be put into the advertising fund of the association and the independent jobber will thus get entire value received for his money spent.

"Additional quantities of gasoline may be made available to members of the association at a later time, should they show an inclination to buy through the association. It is the hope of the association that jobbers, having once bought through the association, will establish direct relations with the refiner, and eliminate the middle man entirely."

NATURAL GASOLINE PLANT

BRECKENRIDGE, Tex., Dec. 22.—The Souders & Fisher Co. has started construction work on a natural gasoline plant on the Walker lease 7 miles north of this city. The plant when completed will handle approximately 20,000,000 feet of gas and will cost approximately a quarter million dollars.

STERLING O. & R. CO. IN RECEIVER'S HANDS

WICHITA, Kans., Dec. 22.—Following the bringing of a suit in equity by the Johns-Manville Co. for $3,819 in Federal Court, the Sterling Oil & Refining Co. of this city was placed in the hands of a receiver by Judge John C. Pollock. Tom C. Johnson, widely known oil operator of this city, was named receiver.

The Sterling Co. built a refinery in this city about four years ago and the plant has since been in constant operation. It has a capacity of 5,000 bbls., including cracking stills.

Mr. Johnson said the company's financial troubles had been due to the unfavorable refined markets during the past few months. He expects to continue operating the plant with practically the same operating and sales force. He said he believed the receivership would be necessary only for a short time and that in the near future the company's affairs could be turned back to the owners. The plant is handling about 1,800 bbls. of crude at present.

MONTANA OIL MEN TO MEET

The quarterly meeting of the Northwestern Independent Oil Association will be held January 15, 1924, at the Placer Hotel, Helena, Mont. An interesting program has been arranged. H. Earl Clack of Havre, Mont., is president of the association.

EXPECT GOOD YEAR IN OIL MARKET; DEMAND AND SUPPLY BALANCING

By N. O. Fanning

NEW YORK, Dec. 24.—The rapid decline in crude oil production in the Powell Field of Texas and the Huntington Beach, Long Beach and Santa Fe Springs fields of California has given legitimate hopes for a definite improvement in the oil business as a whole in 1924 compared with 1923, especially as to crude oil and refined oil prices.

The decline in output which has already occurred has been even more rapid than the oil operators had expected. This is what so often happens in the oil business—changes so rapid that the producers and refiners cannot fully prepare for them.

The Standard Oil Co. of New Jersey, the largest factor in the Powell Field through Humble Oil & Refining, published recently an analysis of the oil situation and outlook in its organ. The Lamp, which predicted a somewhat gradual improvement, with restoration of the balance between demand and supply about June, 1924. Within the few weeks that have passed since that article was issued, Powell production has fallen to around 85,000 bbls. daily, or 75 per cent from the peak, and California output has continued to decline weekly.

Much depends not only on production of crude, but on the consumption of petroleum products next year (so far as foreign production is concerned there probably will be nothing to worry about until 1925). The outlook for consumption differs with respect to the various products.

There is every reason to believe that the domestic consumption of practically all products will hold their present gains or increase. Consumption of gasoline and lubricating oils, especially, should gain, as a result of continued increase in the use of motor vehicles. Already the automobile or motor truck is carrying almost as much freight as the railroads. In 1922 it is estimated that the former carried 1,430,000,000 tons of freight, as against 1,642,000,000 tons for the rail carriers. The day of the automobile has not completely arrived, for there are still many fields where the use of the motor vehicle can be increased, or even doubled —for instance, in the carriage of passengers in motor busses. The petroleum industry had better look to its gasoline supply.

Domestic Lubricant Field

The growth in the domestic demand for lubricants has been less spectacular than that for gasoline or fuel oil, but the biggest oil companies are extremely happy that they had this product for sale this year, with prices of gasoline and fuel oil at rock bottom. For 60 years or more mineral oil has proved the best lubricant, and perhaps some day, when substitutes are developed for other petroleum products, lubricating oil will attain its true place as the leading product of crude oil.

The demand for lubricating oils for motor vehicles and machinery used for manufacturing continues to show a steady increase, which is likely to be continued into 1924. They are not likely to play quite as important a role from an economic viewpoint, however, because gasoline and fuel oil prices are likely to increase.

Prosperity in 1924, with a good rate of industrial activity, will doubtless help to boost the "smoke-stock trade" for lubricating oils.

Kerosene and Furnace Oil

The kerosene demand, so far as the domestic situation is concerned, is not expected to show much of a gain next year, although it will doubtless continue as a big cog in the export wheel. American refiners are now turning their attention to the manufacture of furnace oil. As yet the market for this product is extremely narrow, and economically it may not prove a great factor in earnings until 1925. But 1924 is expected to witness the firm establishment of the product as a valuable and permanent one.

The rapidity of the development of the demand for furnace oil depends not so much on the refiner or the consumer as on the manufacturer of oil burning equipment for domestic furnaces. The public is already sold on the idea that oil is a much better fuel than coal if used properly in the right sort of burner. However, it is not expected to be many months before a dependable and cheap burner is perfected.

Furnace oil is now reported to the

(Continued on Page 102)

N. I. O. M. A. Asks Jobbing Fraternity To Discuss Problems

Twenty questions covering the problems of the independent jobber were presented for discussion at the annual meeting of the Nebraska Independent Oil Men's Association, held at Omaha, Nebr., December 18. Several of these questions were local in scope but a large number are of general interest to the jobbing fraternity and have been recommended as subjects for discussion for all State and national meetings of jobbers associations. A report of the Nebraska meeting was carried in the December 20 issue of The Oil and Gas Journal.

Following are the questions of general interest suggested at the meeting:

How can we best present the cause of the independents before Commercial Clubs, Kiwanis, Rotary and other civic bodies to show why the independent jobber?

What shall be do to convince the Co-Operative Stores, Farmers' Unions, and Farmers Exchanges, that it is to their interests to support the independent jobber?

How shall we abate the nuisance of price cutting garage men?

Shall equipment be loaned or leased to cities, counties, or large private users?

Can we establish and maintain a code of ethics for all competitors large and small?

Can we adopt some uniform standard of emblem, such as recommended by the National Petroleum Marketers Association?

Can we use the uniform system of coupon books interchanged and accepted by the independents?

Can be eliminate all free gift distribution, opening days not excepted?

Shall we protest against merchants in our towns giving tickets for chances on automobiles and merchandise?

What can be done to meet our big competitor in introducing the Tetraethyl-Lead treatment of gasoline?

What shall be the association's attitude on the proposal of the Nebraska Good Roads Association for a 2-cent tax on gasoline?

Are there any reliable substitutes for alcohol (in the radiator)?

Shall we buy of refineries who sell to price cutters, to cities, or who are engaged in the retail business?

Shall the association adopt a private code for all telegraph messages and inquiries?

Can we get in on collective buying as recommended by National Petroleum Marketers Association?

What can be done to bring in more members of the Nebraska Independent Oil Men's Association?

SALLYARDS PLANT TO START

The Empire gasoline plant in the Sallyards Field in Kansas has been completed and is now in operation. The production of the Sallyards plant will exceed the original estimate. The plant is equipped with C. & G. Cooper direct connecting compressor and vacuum units. The branch plant will handle the gas from the North Sallyards Field and will be placed in operation about December 20. The construction of the Sallyards plants makes four natural gasoline plants to be built by the Empire Gasoline Co. in Butler and Greenwood Counties in Kansas in 1923.

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By Dean E. Foster
Natural Gasoline Engineer, Tulsa, Okla.

In the last analysis, when considering the conversion of his plant to the oil absorption system, the owner of a compression plant wants a concise, "plain English" answer to his question, "What will I get back for what I pay out?" The following article is the author's answer to the question:

There are today, in the United States, probably 1,000 gasoline plants, of which about 500 are west of the Mississippi River. Of these 500 plants about 300 are compression, about 150 absorption and the remainder combination compression and absorption. The 300 compression plants, in 1922, produced over 250,000,000 gallons of gasoline; the absorption plants produced about 120,000,000, while the combination plants produced over 30,000,000.

Diagrams Show Layout

It is obvious, therefore, that if the oil absorption plant makes either more gasoline, or better gasoline, or both, then the owners of the 300 compression plants that last year made over 250,000,000 gallons of gasoline should be vitally interested in the answer to the question, "What will I get back for what I pay out?"

In the accompanying diagrams Figure 1 shows the layout of the typical Mid-Continent compression plant. It consists of a compressor building (CB) housing four two-stage compressors (C) and engines (E); a coil pit (CP) with four sets of low pressure spray-cooled coils (LC) connected to the low-stage cylinders (L), and four similar sets of high pressure coils (HC) connected to the high pressure cylinders (H); an auxiliary building (AB) housing the engine (AE) and generator (G); water and gasoline pumps (P) low-stage accumulator tanks (LA), high-stage accumulator tanks (HA), gasoline storage tanks (ST), and weathering tanks (WT).

Simplicity of Conversion

Figure 2 shows the same plant after it has been converted to the oil absorption process. Dotted lines are used to indicate the additional equipment needed in converting the plant. The high-pressure cylinders (H) have been removed from two of the compressors (C) and two low-stage cylinders (DL) that are exact duplicates of the other low-stage cylinders (L) have been substituted, thereby putting the entire plant on a low-pressure basis. This change makes it possible with two machines to handle the same volume of gas that was previously handled by the four units, and thereby to cut the upkeep and repair charges against this part of the plant in half.

From the two compressors the rich gas passes through the low pressure cooling coils (GC) (previously used in the compression system for the same purpose), thence into accumulators (LA) where the heavier gasoline fractions, condensed in the cooling coils are deposited. The gas then enters the vertical absorption towers (AT) at the bottom. In rising through these towers it comes into intimate contact with cold absorbing oil flowing downward over suitable baffles having a large amount of surface over which the oil spreads in a very thin film. During this counter flow of oil and gas the absorbing oil strips the gas of its gasoline content. The dry gas then passes out of the absorbers at the top, through an oil trap (OT) into the plant fuel line and the residue line, while the absorbing oil, enriched with gasoline, passes from the bottom of the absorbers into a vent tank or tower (VT) where some of the entrained fixed gases are allowed to escape. The enriched oil then passes through a heat exchange (HX) into a still (SS) where it is heated and freed of its gasoline content. The hot oil, denuded of its gasoline content, now passes through the other side of the heat exchange (HX) where its temperature is substantially reduced, after which it flows to one of the oil pumps (OP) in the auxiliary building.

How Oil Is Cooled

The oil, now under pressure, is forced through the water sprayed coils (OC) which were formerly used for cooling the high pressure gas of the compression process. These high pressure gas coils are usually sufficient for cooling the oil used in the absorption process. The header system will need changing in order to obtain the velocities necessary for efficient cooling of the oil. This change, however, is comparatively inexpensive. After leaving the cooling coils (OC) the cold denuded oil enters the top of the absorbers (AT) thus completing the cycle—and ready to make an endless number of "round trips" during each of which it picks up gasoline in the absorption towers and loses it in the still.

In leaving the still the gasoline vapor carries with it a small percentage of absorbing oil. If this is not removed the gasoline will have a high end point. To remove the oil thus carried over, it is necessary to pass the hot vapors through a dephlegmating or "knock out" tower (DP) which cools the vapor stream sufficiently to condense the oil—and thereby improve the quality of the gasoline.

From the dephlegmating tower the vapors pass to the condensing coils (VC) then to the accumulator tanks from which the gasoline is trapped to the storage tanks.

The condensing coils are shown on the diagram in dotted lines thus indicating that they are an addition to the plant occasioned by converting it from compression to absorption. It is not always necessary to add coils for this purpose as a check-up of the existing high pressure gas coils of the compression plant may reveal the presence of a sufficient number of coils for both the oil cooling and gasoline condensing requirements of the converted plant. Therefore, it is sometimes possible to get the greater efficiency of the oil absorption plant with little cost, so far as coils are concerned, except the labor of conversion. The diagram shows an enlargement of the coil pit and louvre tower in order to provide room for the vapor condensing coils. In some plants this expense can be avoided by locating the new coils within the old tower.

If a steam still is used for freeing the enriched oil of its gasoline content, a couple of boilers will be necessary. The boilers can be eliminated, however, if a fire still and evaporating tower are used.

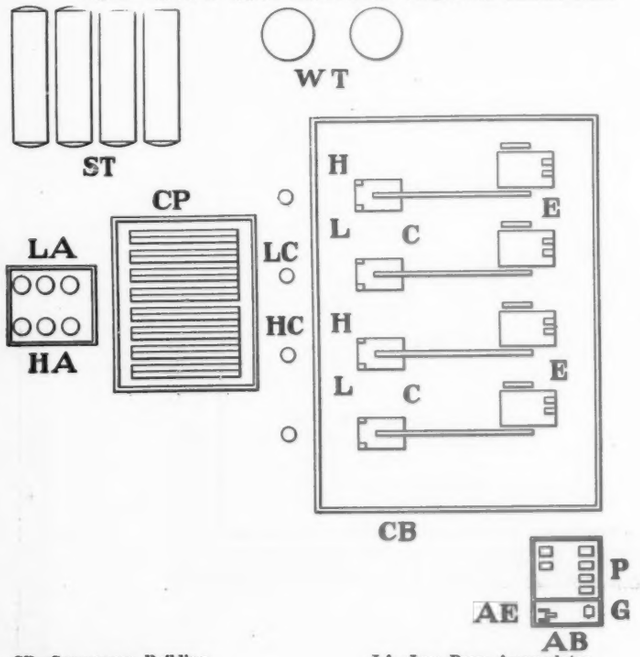
The weathering tanks used with the compression system are available as oil tanks (OS) for the storage of absorbing oil when the plant is converted.

The light vapors which pass through the gasoline condensing coils may be returned either to the plant intake header or to a machine called the recompressor (RC) (here shown as one of the original four units, although as a matter of fact a much smaller machine may be substituted, and this unit salvaged).

The oil circulating pumps (OP) may be driven by one of the compressor engines if the auxiliary engine is not powerful enough to carry the extra load.

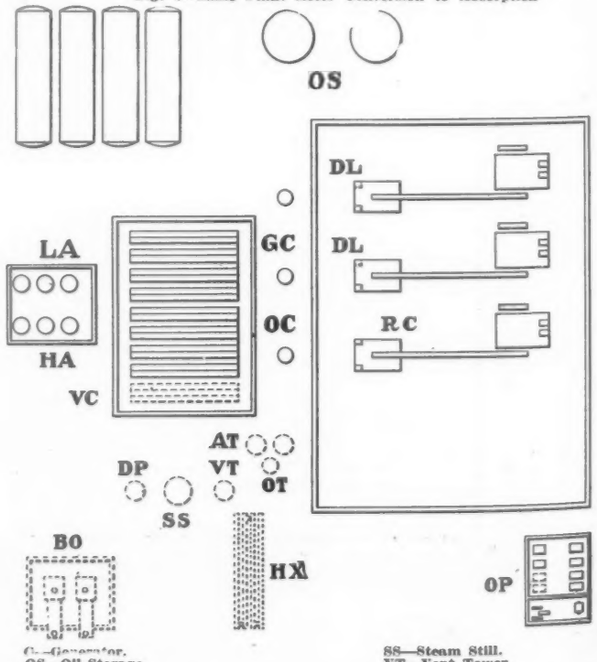
The operation of the plant is made

Fig. 1—Layout of Typical Mid-Continent Compression Gasoline Plant



CB—Compressor Building.
C—Compressors.
E—Engines.
H—High Press Cylinder.
L—Low Press Cylinder.
HC—High Press Coils.
LC—Low Press Coils.
LA—Low Press Accumulator.
HA—High Press Accumulator.
ST—Storage Tanks.
WT—Weathering Tanks.
AB—Auxiliary Building.
AE—Auxiliary Engine.
P—Pumps, Aii.

Fig. 2—Same Plant After Conversion to Absorption



G—Generator.
OS—Oil Storage.
RC—Recompressor.
DL—New Low Cylinders.
OP—Oil Pumps.
AT—Absorbers.
OT—Oil Trap.
HX—Heat Exchanger.
SS—Steam Still.
VT—Vent Tower.
DP—Dephlegmator.
BO—Boilers.
VC—Vapor Coils.
OC—Oil Coils.
GC—Gas Coils.
CP—Coil Pit.

automatic by the installation of thermostatic controls, liquid level regulators and pressure regulators. The oil absorption process is easy to operate because it is a continuous process. The automatic control features make it possible to operate such a plant with a minimum expense for labor. Small plants, with automatic equipment, are today being satisfactorily handled by the lease operators. In these respects the continuous oil absorption process has many decided advantages over batch absorption processes which need the continuous attention of plant operators on duty day and night.

A study of the two figures illustrating the changes necessary in converting a compression plant to the oil absorption process shows that the conversion from one system to the other is a comparatively simple proposition. A summary of the apparatus shown in dotted lines on Figure 2 shows the following additional equipment: Low pressure cylinders, absorbers, oil trap, vent tower, steam still, dephlegmating tower, heat exchanger, boilers, oil pumps, vapor condensing coils. On the other hand, however, when the plant has been converted, one or more engines and compressors thereby rendered unnecessary may be salvaged or used in the construction of a plant elsewhere, thereby substantially reducing the cost of conversion.

Economics of Conversion

The greater efficiency of the oil absorption process, measured in terms of "increased profit on the money invested," is clearly demonstrated by the fact that practically all new plants built today are oil absorption plants — and by the further fact that the compression plants of the entire United States are being rapidly changed over to oil absorption.

In the final analysis "profit" is the standardizer of mechanical equipment, and processes — and, measured by the standard of "larger profits," the oil absorption process has abundantly demonstrated its superiority in the following ways:

1. It produces more gasoline.
2. It produces better gasoline.
3. It successfully and safely treats gases containing high percentage of air.
4. It treats lean gases that cannot be treated by compression.
5. It can be operated at less expense.
6. Absorption gasoline is more marketable than compression.
7. Absorption gasoline commands a higher price than compression.

Makes More Gasoline

The inefficiency of the compression method was recognized several years ago. Tests made at over 300 compression plants have demonstrated that the residue gas from these plants seldom contains less than 0.2 of a gallon of gasoline per thousand cubic feet and sometimes as much as 0.8—the average being about 0.4 of a gallon.

A properly constructed and properly operated oil absorption plant can extract all of the gasoline content of the gas and leave the residue gas "bone dry." The Bureau of Mines statistics of natural gasoline production of the United States for 1922 indicate that the average compression plant produces 2.9 gallons of gasoline to the thousand feet of gas treated. If we add to this average of 2.9 gallons recovered, the 0.4 of a gallon left in the gas by the average compression plant, it is evident that we should be able to obtain a production of 3.3 gallons per thousand feet. This increase from 2.9 gallons to 3.3 gallons represents an increase of almost 14 per cent more gasoline which can be obtained by converting the plant to the oil absorption system. Actual experience in the operation of a number of converted plants, however, has demonstrated that the increase in net gallons of gasoline produced usually amounts to about 20 per cent. This additional recovery of about 6 per cent is due to the reduction, in the converted plant, of the weathering, evaporation, loading and outage losses. In other words, you not only get more gasoline but you deliver more of what you get.

Makes Better Gasoline

In the production of gasoline by the compression process the "fixed" gases, such as ethane and propane, are dissolved in the gasoline condensate in quantities sufficient to give it a high vapor tension and a high gravity. In reducing this "wild" (high vapor tension, high gravity) compression gasoline to a commercial, marketable product, it is necessary to subject it to a weathering process during which a large part of the fixed gases are allowed to escape, carrying with them, unfortunately, a substantial amount of gasoline hydrocarbons. This weathering process fails, however, to eliminate all of the dissolved fixed gases while wasting some of the valuable gasoline constituents, for which reason the weathered compression product is still more volatile than absorption. The amount of weathering of the compression product must, therefore, be a compromise between the elimination of fixed gases and the loss of valuable gasoline fractions.

When the demand for natural gasoline is good, buyers are willing to accept gasolines having the maximum allowable vapor tensions. At such times the compression manufacturer reduces the weathering of his product and thus has more gasoline to sell. When the demand is not so great, buyers are more exacting. Lower vapor tensions and higher percentages of "recovery" are required. This very naturally results in larger weathering losses, which leaves the gasoline manufacturer with less gasoline to sell at a time when prices are low. On the other hand, in a properly designed oil absorption plant, the oil in its counter current flow, selectively absorbs all of the desirable gasoline fractions and rejects most of the undesirable fixed gases. Absorption gasoline is therefore less volatile, has a lower vapor tension, a lower gravity and a higher "recovery" than compression gasoline.

Exeperience shows that in addition to producing a higher quality gasoline, the plant evaporation losses, loading losses and outage losses at an oil absorption plant are all very appreciably reduced, as compared with losses at a compression plant. On account of the reduction of these losses we find, in the actual conversion of plants from compression to absorption, that the net increase in gallons of marketable gasoline averages around 20 per cent, instead of the 14 per cent calculated. It is the gasoline that the manufacturer delivers to his customer that he gets paid for—and the higher the quality the more he is paid for it. The oil absorption process, therefore, does the highly desirable thing of not only producing more gasoline but better gasoline — and thereby substantially increases the earning power of the money invested.

Handles Air Successfully

In all fields where oil is produced under vacuum, the casinghead gas treated in gasoline plants contains considerable air due to leaks in gas gathering lines and faulty casingheads. This air is a deadly enemy to the production of gasoline in compression plants, on account of the difficulty of condensing light gasoline vapors in its presence. The absorption plant owner, however, has little to fear when air is present in his casinghead gas for it has almost no effect in the operation of his plant.

Air not only reduces the production of gasoline in a compression plant but makes the operation of such a plant highly hazardous when present in the gas in quantities great enough to form explosive mixtures. The history of the natural gasoline industry contains the record of many catastrophes due to the blowing up of compression plants from the spontaneous ignition of gas mixed with air. The combination of high pressure and high temperature necessary to produce spontaneous combustion of this explosive "gas-air" mixture is rarely ever possible in an oil absorption process plant, because the pressures used are very much lower than those employed in compression plants, while the temperatures resulting from the heat of compression are also lower than in a high pressure compression plant. It is, therefore, obvious that in oil absorption plants it is not only possible to treat gases containing high percentages of air successfully, but to do so with far greater safety.

In compression plants lean gases have the same detrimental effect upon the production of gasoline that air has. Operators of this type of plant have often found it profitable to "turn out" the gas produced by certain wells, or even entire leases, because its treatment actually decreased the total plant production.

The owner of an oil absorption plant, however, can treat this lean gas successfully and thereby make a profit where the compression plant operator would incur a loss, because lean gas, in passing through a compression plant, with other gases that are highly saturated, becomes enriched at the expense of the rich gas, and thereby increase the amount of gasoline left in the residue. On the other hand, a properly designed oil absorption plant will leave no gasoline in the residue.

In converting a compression plant to the oil absorption process, the gas handling capacity of the compressors can be doubled, as stated before, by simply replacing the high pressure cylinders with a set duplicating the low pressure cylinders already in use. If there is a supply of lean gas available that could not be treated successfully in the compression plant, it can be turned into profit by treatment in the converted plant.

As a practical illustration of what may be accomplished along this line, let us consider the case of a compression plant now treating 800,000 feet per day of 1½ gallon gas and producing 1,200 gallons of gasoline. The residue gas from this plant shows a gasoline content of 0.35 of a gallon per thousand feet. There are approximately 2,000,000 feet of three-quarter gallon gas available in nearby fields which, if treated by the compression process, would not yield enough gasoline to make its treatment profitable. Moreover, the plant capacity is not large enough to treat the extra 2,000,000 feet available, even though the plant has some surplus capacity over its present production of 1,200 gallons a day. However, it will be possible to treat all of this gas by converting this plant to the absorption process. The production that can reasonably be expected from the converted plant is calculated as follows:

Cubic Feet	Gasoline Content	Prod. Gallons
800,000	1.50 G.P.M.	*1,200
800,000	.35 G.P.M.	† 280
2,000,000	.75 G.P.M.	‡1,500

Total from all sources, 2,980 gallons daily.

*Present production.
†From present residue.
‡From new gas.

This estimated production represents an increase of 150 per cent, or two and a half times the present production. The benefits expected in this particular case will not be limited, however, to the esti-

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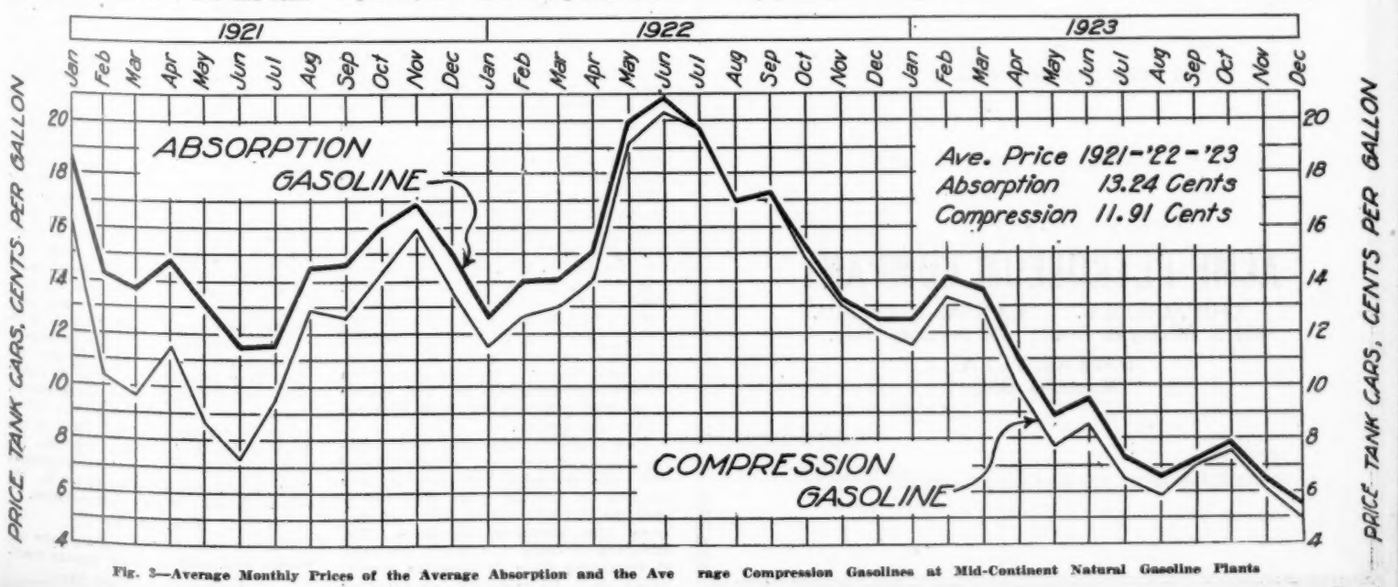

Fig. 3—Average Monthly Prices of the Average Absorption and the Average Compression Gasolines at Mid-Continent Natural Gasoline Plants

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BULLISH ON NEW NAVY IN CHICAGO

Demand for Winter Grade Gasoline Contributes to Sport in Higher Gravities. Kerosene Less Strong. Gas Oils Firmer and Fuel Oil Prices Advance. Oklahoma Lubricants Are Coming Back

By Ralph T. Baker

CHICAGO, Dec. 24.—Refiners in the Chicago territory are chronically bullish regarding the New Navy market. This tendency was reflected in additional hectic increases to the spot market price and the realization that more refiners are reporting themselves sold up and unable to take care of any new inquiries. A further factor in the situation is seen in the fact that several of the larger refiners boosted their prices for New Navy to 8½ cents.

This figure, of course, is merely "asking price" and can be treated seriously only as an index of the condition of affairs in this vicinity. It will be remembered that when these same refiners boosted their prices to a 7-cent figure, marketers were given a chance to wonder. The 7-cent price has come and gone and still these refiners, with a few new members to their group, several steps ahead of spot conditions, much to the disgust of the marketer and jobber, who are beginning to see an end of their "easy pickings."

It would not be far wrong to say that present bottom price for New Navy around Chicago was 7¼ cents. Many sales have been reported at 7½ cents with the bulk of new sales pointing to additional advances. The indications are upward, with the probability that 7¾ cents may be the common price in a few days.

Open Weather Aids Demand

The open weather has continued, contributing to the good demand for motor fuel, considering the time of the year. The movement during the week has been good with many refiners behind on their orders. With a large number of refineries shut down, and others sold up over a period, the few salesmen capable of taking care of spot orders begin to see daylight ahead.

Marketers and jobbers have been exhibiting some tendency toward nervousness concerning the bullish aspects of the market and the seeming tendency of refiners to carry prices to new high levels. Refiners report that they have received numerous inquiries concerning marginal contracts for 1924 from jobbers, who have forsaken the advancing spot market, with the change in conditions. To these gentlemen the refiners, as in one accord, reply that they are not giving any marginal contracts for 1924. Too often the refiners are reminded of broken contracts on the part of the jobbers during the recent months of low refinery prices, when the spot market held a more attractive price. The refiner seems to be approaching a turn at bat at the expense of the jobber now. Several marginal contracts have been signed during the past month, however, with the Taxman Refining Co. leading the list, having disposed of practically its entire allotments from Cosden & Co. through this route. Others of the Group 3 refiners have made varying amounts of contracts, but the tendency now is to turn down all inquiries along this line and gamble on the rosy promises held in an expected higher spot market.

Jobbers still are neglecting to fill tankage and marketers, and although faced with the possibility of making nice margins in holding some New Navy, seem to be reluctant to step out and make the necessary purchases. The stiffening tendency has shown no signs of weakening since its inception several weeks ago. All gasolines and naphthas have been affected recently with the 60-62 400 end point gasoline and the 50-52 450 end point naphtha showing the greatest activity during the past week.

Higher Gravities Helped

Demand for winter grade gasoline has contributed largely to the sport made in the higher gravities recently. Naphthas and blends were helped as well, many jobbers preferring the blends for winter use, in face of higher prices for the straight run materials. All motor fuels have responded during the past few days. Naphtha and the higher grades of gasoline remain scarce, helping these prices, in addition to the natural increase expected in line with Navy. Little of the 56-58 450 gasoline can be found for blending. Refiners are refusing to quote naphtha prices to the trade, many becoming alarmed over its scarcity.

As a result of the recent activity in gasolines, absorption natural gasoline rapidly recovered. The other grades are still considered a drug on the market and are more plentiful than necessary, but the increased demand for blends has resulted in support for the more stable product. With the decision of refiners to cut deeper and crack harder, now that New Navy prices are more consistent, it is thought that all natural gasolines will be in greater demand soon. Many students of market conditions feel that better times are in store for this branch of the industry. Inability to get naphtha for blending has added to the confusing over absorption prices, causing an enormous price spread.

Reports of merger rumors have been stilled somewhat by the opinions of dopesters concerning the probabilities of crude price changes and an increase in the gasoline tank wagon market. Few men can be found that do not feel a substantial rise in the price of Oklahoma crude is a logical conclusion. Refiners argue that they should be given a chance to recoup some of their recent losses while crude is low, but others feel that higher crude will mean higher refinery prices which will be passed on to jobber and consumer. An increase in the tank wagon price of gasoline is freely predicted for the first of the coming year with a number of enthusiasts believing it is closer at hand.

Kerosene Less Steady

No domestic demand for kerosene has developed with the result that this product has been less steady with the prices of the preceding week. Stocks are reported increasing, due to the recent flurry on the part of refiners to get in on the big export orders. New export orders are anticipated soon after January 1, but to date they have not materialized, causing the refiners to show a tendency to unload here and there, by shading prices slightly. The movement is still good and the price has been kept fairly well in line, but the tendency is downward if conditions do not change.

Gas oil and distillates showed some slight tendency to strengthen, particularly gas oil, due to the fact that some refiners were storing this grade of material for charging their cracking systems as a result of increased demand for New Navy and the accompanying higher prices expected during the spring months. Refiners are failing to quote for future deliveries on gas oil and there is not much of this stuff moving. Distillate has been helped more by general conditions than by any specific demand for it. Oil burner demand is still disappointing.

Fuel Oil Up

Fuel oil continues to register price advances with only a small amount avail-

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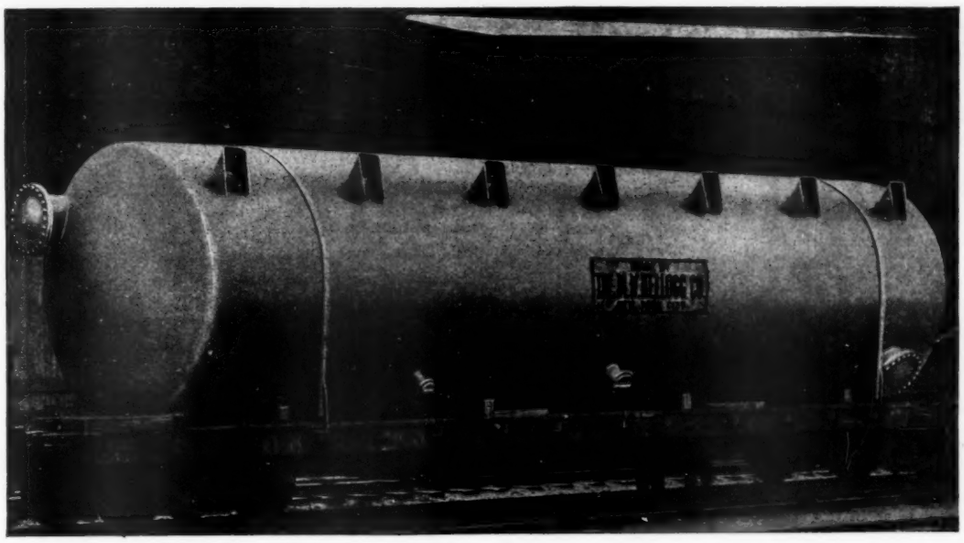

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Up-to-Date List of Natural Gasoline Plants

The following list of natural gasoline plants in various sections of the United States is believed to be as accurate as it is possible to obtain at this time. The list has been checked in various ways and circularized to verify information and, while there may possibly be some errors in it, The Oil and Gas Journal feels it is approximately correct. Should there be any mistakes in the list, The Oil and Gas Journal would appreciate being notified of the fact.

KANSAS

Name and P. O. Address—	Location Ldg. Pt.	Type	Dy. Av. Output (Gallons)
Barco Gasoline Co., Tulsa	Peru	Comp.	2,500
Barco Gasoline Co., Tulsa	Sedan	Comp.	2,500
Empire Gasoline Co., Bartlesville	Arkansas City	Absp.	10,000
Empire Gasoline Co., Bartlesville	Caney	Absp.	10,000
*Empire Gasoline Co., Bartlesville	Leon	Absp.	2,000
*Empire Gasoline Co., Bartlesville	Madison	Absp.	9,000
Empire Gasoline Co., Bartlesville	Madison	Absp.	2,000
Eureka Gasoline Co., Neodesha	Neodesha	Comp.	2,000
Lewis Oil Co., Tulsa	Gordon	Absp.	5,000
†Owen Gasoline Co., Caney	Caney	Absp.	2,000
Pep Gasoline Co., Kansas City	Sedan	Comp.	1,000
Roth Gasoline Co., Independence	Elgin	Comp.	2,000
Sproul Gasoline Co., Sedan	Peru	Comp.	1,000
Tidal Refining Co., Tulsa	Douglas	Absp.	10,000
**Empire Gasoline Co., Bartlesville	Sallyards	Absp.	3,900

*Just completed.
†Building.
**Just started up.

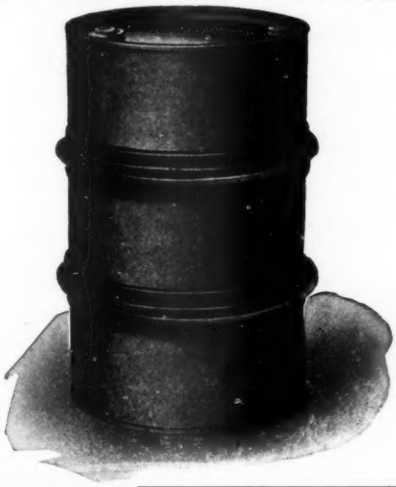
OKLAHOMA

Name and P. O. Address—	Location Ldg. Pt.	Type	Dy. Av. Output (Gallons)
A. C. F. Gasoline Co., Tulsa	Oilton	Comp.	1,000
Akin Gasoline Co., Tulsa	Bixby	Absp.	800
	Dewey (2)	Absp.	700
Amerada Petroleum Corp., Tulsa	Brock	Absp.	3,500
	Tonkawa	Absp.	15,000
American Gas & Carbon Co., Indianapolis	Foyil	Comp.	1,200
Amity Gasoline Co., Bartlesville	Dewey	Comp.	2,000
	Mounds	Comp.	500
	McMann	Comp.	1,000
	Watova (2)	Comp.	4,000
Arrow Gasoline Co., Tulsa	Broken Arrow	Comp.	500
Arthur Oil Co., Tulsa	Sapulpa	Comp.	500
B. & M. Gasoline Co., Tulsa	Bartlesville	Comp.	1,000
	Schulter	Comp.	2,000
Bankers Gasoline Co., Boynton	Boynton	Comp.	500
Bankers Oil Co., Boynton	Morris	Comp.	500
Barbara Oil Co., Okmulgee	Okmulgee	Comp.	600
Barnsdall Corp., Tulsa	Avant	Absp.	1,500
	Barnsdall	Absp.	2,500
	Dewey	Comp.	400
	Osage	Absp.	1,000
	Turley	Absp.	1,000
Boynton Gasoline Co., Boynton	Chase	Comp.	2,500
J. G. Bradstreet & Co., Muskogee	Muskogee	Comp.	500
Cane Creek Petroleum Co., Sapulpa	Boynton	Comp.	500
Carter Oil Co., Tulsa	Boynton	Comp.	800
	Burbank	Absp.	25,000
	Oilton (2)	Comp.	2,400
	Wann	Comp.	1,000
	Wilson	Comp.	8,500
Chase Gasoline Co., Tulsa	Muskogee (2)	Comp.	3,000
	Glen Pool (4)	Both	24,000
Chestnut and Smith Corp., Tulsa	Morris (2)	Comp.	4,500
Chieftain Gasoline Co., Tulsa	Oilton	Comp.	2,000
Cloco Gasoline Co., Tulsa	Shamrock	Comp.	1,500
Comar Gasoline Co., St. Louis	Marland	Absp.	10,000
	Tonkawa	Absp.	15,000
Cosden Oil & Gas Co., Tulsa	Drumright	Comp.	12,000
	Garber	Comp.	2,500
	Shamrock	Comp.	10,000
	Stone Bluff	Comp.	3,500
Crosbie & Gillespie, Tulsa	Keifer	Comp.	7,500
De Soto Gasoline Co., Beaumont, Tex.	Muskogee	Comp.	550
	Wann	Comp.	200
Dewey Portland Cement Co., Dewey	Dewey	Comp.	2,000
Diamond Refining Co., K. C., Mo.	Delaware	Comp.	7,000
	Jenks	Comp.	1,500
	Jennings	Both	3,000
	Nowata	Comp.	3,000
	Ochelata	Absp.	1,500
Dickenson, W. O., Tulsa	Bixby	Absp.	500
Eagle Gasoline Co., Tulsa	Glen Pool	Comp.	4,000
Eagle Picher L. & Z. Co., Henryetta	Henryetta	Absp.	5,000
Empire Gasoline Co., Bartlesville	Covington	Comp.	2,000
	Okemah	Absp.	6,500
	Tallant	Absp.	10,000
Enfisco Oil Corp., Tulsa	Glen Pool (2)	Comp.	3,000
Flesher Petroleum Co., Tulsa	Sperry	Absp.	500
Foster & Norwood, Bartlesville	Barnsdall	Absp.	2,500
Foster Gasoline Co., Tulsa	Covington	Comp.	2,000
Four Gasoline Co., Tulsa	Bixby	Comp.	1,000
Franchot & Co., Tulsa	Keifer	Comp.	800
Gates Oil Co., Ardmore	Healdton	Comp.	2,000
Gilliland Oil Co., Tulsa	Barnsdall	Comp.	650
	Drumright	Comp.	700
	Shamrock (2)	Comp.	4,600
	Shamrock	Absp.	500
Glenn Gas Co., Tulsa	Glen Pool	Comp.	2,000
Graham Oil & Gas Co., Tulsa	Pershing	Comp.	3,000
Grimes Gasoline Co., Tulsa	Haskell	Absp.	500
Gypsy Oil Co., Tulsa	Burbank (2)	Absp.	25,000
	Cleveland (2)	Comp.	8,000
	Drumright	Comp.	11,500
	Jenks	Comp.	2,500
	Keifer	Comp.	30,000
	Shamrock	Comp.	9,000
	Tonkawa	Absp.	15,000
Hamon Estate, Ardmore	Wirt	Comp.	3,000
Harlis Oil & Gas Co., Tulsa	Avant	Comp.	1,100
Hastings Gasoline Co., Sapulpa	Sapulpa (2)	Absp.	1,500
Havner Petroleum Co., Tulsa	Teriton	Comp.	500
Henderson Co., New York	Nowata	Comp.	16,000
Hesco Gasoline Co., Tulsa	Drumright	Comp.	1,200
Highway Oil & Ref. Co., Tulsa	Broken Arrow	Comp.	1,000
	Jenks	Comp.	1,000
	Leonard	Comp.	2,500
	Okmulgee (3)	Comp.	3,000
	Sapulpa	Comp.	1,500
Huley Gasoline Co., Tulsa	Beggs	Comp.	6,000
Ideal Gasoline Co., Tulsa	Teriton	Absp.	2,000
Junior Refining Co., Okmulgee	Okmulgee	Absp.	1,500
Kingwood Oil Co., Okmulgee	Okmulgee	Absp.	2,500
Lane Gasoline Co., Nowata	Nowata	Comp.	300
Lily Gasoline Co., Sapulpa	Sapulpa	Comp.	600
	Skiatook	Comp.	400
Liquefied Petroleum Co., Tulsa	Beggs	Absp.	3,000
Livingston Oil Corp., Tulsa	Bixby	Absp.	500
Magnolia Petroleum Co., Dallas	Cushing	Comp.	2,300
	Duncan	Absp.	
	Healdton (5)	Comp.	2,500
	Oilton (3)	Both	6,000
	Quay (2)	Comp.	6,500
	Shamrock (5)	Both	6,500
	Yale	Comp.	20,000
Marland Refining Co., Ponca City	Ponca City	Comp.	6,000
	Ponca City	Absp.	2,500
	Ponca City	(Booster)	2,300
Mason, D. B., Tulsa	Osage	Comp.	900
	Bartlesville	Absp.	1,500
McCaskey & Wentz, Ponca City	Peckham	Comp.	1,500
	Tonkawa	Absp.	6,000
Meridian Petroleum Corp. (Receiver), Tulsa	Sapulpa	Comp.	7,500
Merrick Gasoline Co., Ardmore	Wirt	Comp.	750
McMan Oil Co., Tulsa	Tonkawa	Absp.	500
Mid-Co Gasoline Co. (Receiver), Tulsa	Billings	Comp.	12,000
	Dewey	Comp.	4,000
	Drumright	Comp.	3,000
	Inola	Comp.	500
	Oilton (2)	Comp.	6,000
	Wann	Comp.	500
Model Gasoline Co., Tulsa	Covington	Comp.	2,000
Monarch Gasoline Co., Tulsa	Glen Pool	Comp.	1,400
C. & S., Tulsa	Glen Pool	Comp.	9,000
Motor Gasoline Co., Muskogee	Muskogee	Comp.	1,000
National O. & D. Co., Oklahoma City	Bartlesville	Comp.	2,000
National Products Co., Tulsa	Cleveland	Absp.	2,500
	Mounds	Absp.	600
	Oilton	Absp.	2,200
	Slick	Absp.	2,500
	Teriton	Absp.	3,000
Nixon Oil Co., Tulsa	Owasso	Absp.	425
Noble Oil & Gas Co., Tulsa	Quay	Absp.	3,500
Northland Gasoline Co., Tulsa	Sapulpa	Comp.	1,500
Nowata Oil & Refining Co., Tulsa	Lenepah	Comp.	500
Oil State Gasoline Co., Tulsa	Beggs (2)	Comp.	6,000
	Jenks	Comp.	2,000
Okla. Gasoline Plants, Inc., Okla. City	Drumright	Comp.	2,500
	Oilton	Comp.	1,500
Oklahoma Gasoline & Oil Co., Tulsa	Mounds	Absp.	2,500
	Sapulpa	Comp.	300
	Stone Bluff	Absp.	2,000
	Wynona	Absp.	3,000
Oklahoma Natural Gas Co., Tulsa	Kellyville	Absp.	2,000
	Morrison	Absp.	1,000
	Rush Springs	Absp.	1,000
	Shamrock	Absp.	500
	Stroud	Absp.	1,000
Okla. Prod. & Ref. Corp. of America, Tulsa	Mounds	Comp.	500
	Okmulgee	Comp.	2,500
Omar Gasoline Co., Wichita Falls	Grandfield	Comp.	10,000
Orfic Gasoline Prod. Co., Tulsa	Cleveland	Comp.	2,500
	Jennings	Absp.	2,500
Overland Petroleum Co., Tulsa	Sapulpa	Comp.	400
Owen Gasoline Co., Caney, Kans.	Boynton	Comp.	500
Paraffine Oil Co., Beaumont, Tex.	Barnsdall	Absp.	3,000
Pep Gasoline Co., Bartlesville	Jenks	Comp.	400
Peppers Gasoline Co., Enid	Osage	Comp.	800
	Billings	Comp.	1,200
	Covington	Comp.	3,000
Phillips Petroleum Co., Bartlesville	Tonkawa	Absp.	15,000
	Bartlesville	Comp.	1,000
	Shidler (2)	Absp.	45,000
	DeNoya	Absp.	30,000
	Bryant (2)	Absp.	14,500
Phillips, Waite, Co., Tulsa	Pershing	Absp.	15,000
Pine, W. B., Okmulgee	Nuyaka	Absp.	6,000
Pollvogt Gasoline Co., Tulsa	Haskell	Comp.	500
Powers & Quinlan, Tulsa	Shamrock	Absp.	600
	Laden	Comp.	2,500
Pulaski Oil Co., Tulsa	Preston	Comp.	2,500
Pure Gasoline Co., Tulsa	Depew	Absp.	8,000
	Red Fork	Comp.	500
Pure Oil Co., Columbus, Ohio	Drumright	Comp.	9,000
	Haskell	Comp.	1,000
	Healdton	Comp.	5,000
	Oilton	Comp.	8,000
Rainbow Gasoline, Tulsa	Depew	Both	3,500
Reco Gasoline Co., Okmulgee	Okmulgee	Comp.	1,500
Richmond Gasoline Co., Tulsa	Bowden	Comp.	350
Robinson & Ice, Tulsa	Leonard	Comp.	600
Romarti Gasoline Co., St. Louis	DeNoya	Both	7,500
Roxana Petroleum Corp., St. Louis	Drumright	Comp.	7,000
	Covington	Comp.	3,500
	Yale	Absp.	1,500
Rotary Gasoline Co., Tulsa	Sperry	Absp.	1,100
Sapulpa Refining Co. (Receiver), Tulsa	Shamrock	Absp.	2,000
Savoy Oil Co., Tulsa	Porter	Absp.	500
Seaboard Oil & Gas Co., Muskogee	Eram	Comp.	1,000
Sequoyah Oil & Ref., Tulsa	Morris	Comp.	500
Shaffer Oil & Ref. Co., Chicago	Beggs	Comp.	2,000
	Cushing	Absp.	1,000
	Drumright	Comp.	4,500
	Shamrock	Comp.	2,500
Sinclair Oil & Gas Co., Tulsa	Bald Hill	Comp.	2,200
	Burbank	Absp.	13,500
	Covington	Comp.	20,000
	Drumright	Comp.	8,000
	Shamrock	Comp.	10,200
	Stone Bluff	Comp.	800
Skelly Oil Co., Tulsa	Bristow	Absp.	12,000
	Kaw City	Absp.	13,500
	Slick	Absp.	2,000
	Wynona	Absp.	11,000
Slick, T. B., Interests, Tulsa	Shamrock	Comp.	500
Smith, R. H., et al, Tulsa	Holdenville	Absp.	7,500
Solar Products Co., Tulsa	Coweta	Absp.	2,500
Southland Gasoline Co., Tulsa	Oilton	Comp.	1,000
	Sapulpa	Comp.	1,500
Star Gasoline Co., Sapulpa	Eram	Absp.	1,500
Standard Oil Co. (Ind.), Chicago	Drumright (2)	Comp.	35,000
	Oilton	Comp.	15,000
	Shamrock (2)	Comp.	22,500
Stebbins Oil & Gasoline Co., Tulsa	Inola	Comp.	1,500
	Boynton	Comp.	500
Stoutz Bros. & Ennis, Muskogee	Muskogee	Comp.	700
C. & S., Tulsa	Muskogee	Comp.	2,500
The Texas Co., Houston	Bald Hill	Comp.	6,500
	Barnsdall	Comp.	2,000
	Cleveland	Comp.	1,500
	Drumright	Comp.	20,000
	Keifer	Comp.	15,200
	Oilton	Comp.	4,000
	Preston	Comp.	1,700
Tidal Refining Co., Tulsa	Delaware (2)	Comp.	2,000
	Drumright	Absp.	13,500
	Garber	Comp.	1,200
	Glen Pool (2)	Both	11,500
	Keystone	Absp.	1,000
	Ochelata	Comp.	2,000
Tower Gasoline Co., Oklahoma City	Blackwell (3)	Absp.	12,500

P.I.W.
STEEL PLATE CONSTRUCTION

That Rugged Chime

is the reason "Presteel" Drums come back again, time after time, from long hard trips. It's this chime that holds its contents intact long after the ordinary package has passed to the scrap heap.



Because the chime is the vulnerable point on a container P. I. W. leaves nothing undone to make it perfect. The chime ring is a heavy section of specially rolled steel. The head and shell fit into a snug recess in this ring and the extending lip of the ring is then rolled down compactly making a tight package of extreme long life.

"Presteel" Light Gauge Drums, 15, 30, 50 and 55-gal. capacities.
"Presteel" I. C. C. Drums, 30, 55 and 110-gal. capacities.
"Presteel" Special Drums, 150 and 175-gal. capacities.
"Gem" Bilged Steel Barrels, black, galvanized or tinned, 55-gal. capacity only.

The Petroleum Iron Works Company
Pressed Steel Products Dept.
Sharon, Pa.
New York St. Louis Houston Tulsa Casper San Francisco

P. I. W. STEEL PLATE PRODUCTS ARE USED IN THE PETROLEUM, GAS, MINING, RAILWAY, IRON AND STEEL, WATERWORKS, ENGINEERING AND ALLIED INDUSTRIES.

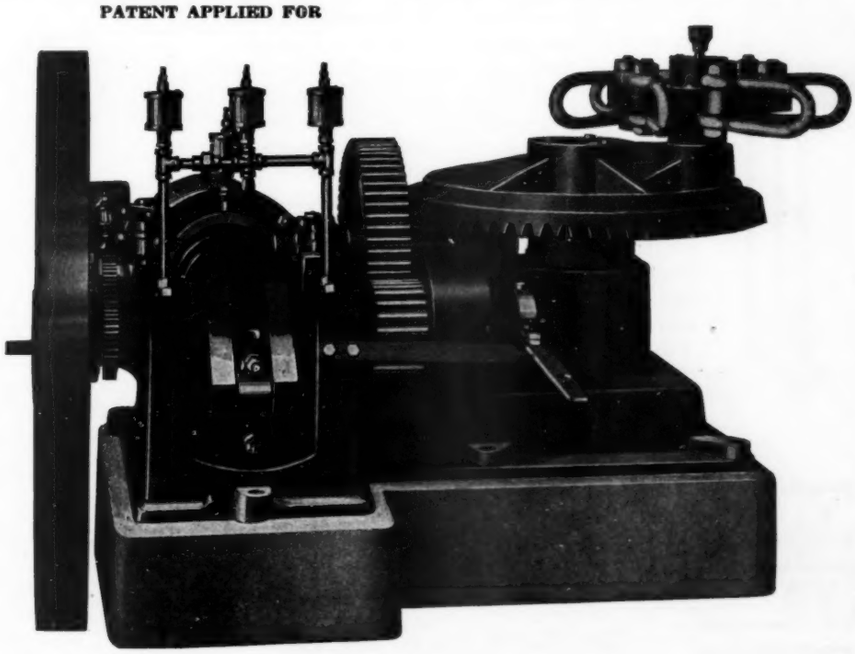
New Type Combination Geared Power

PATENT APPLIED FOR

MANUFACTURED IN TWO SIZES

With 8 H. P. and 12 H. P. Four-Cycle Gas Engine

Equipped with magneto ignition, far superior to old style combination power that requires swings to hook on wells. Eight H. P. will handle six 1,000-foot wells, when balanced. Weight 2,100 lbs. 12 H. P. will handle ten 1,000-foot wells, when balanced. Weight 4,300 lbs. These units are self contained and can be set on wood or concrete foundations.



The Pattin Brothers Company
Main Office and Works: Marietta, Ohio
Branch Warehouse and Office: Tulsa, Okla., Wichita Falls, Texas Carried in Stock by Frick & Lindsay Co., in Kentucky

	Cushing	Absp.	
	Okmulgee	Absp.	7,500
	Peckham	Absp.	3,500
	Yale	Absp.	3,000
Tanscontinental Oil Co., Tulsa	Alluwe	Comp.	4,300
			2,500
	Bald Hill	Comp.	
	Bristow	Comp.	3,500
	Delaware (3)	Comp.	10,000
	Haskell	Comp.	4,000
	Morris (3)	Comp.	1,000
	Nowata (2)	Comp.	7,500
Mid Co., Tulsa	Sapulpa	Comp.	4,000
Tribes Gasoline Co., Tulsa	Henryetta	Absp.	500
	Jenks	Comp.	3,500
	Mehan	Absp.	1,000
Tulsa Gasoline Mfg. Co., Tulsa	Glen Pool	Comp.	3,300
Twin State Oil Co., Tulsa	Quay	Comp.	400
Twitchell & Myers, Okmulgee	Schulter	Comp.	4,500
C. & S., Tulsa	Bristow	Both	400
	Drumright	Comp.	5,000
	Oilton	Comp.	10,000
Virginia-Cal. Gasoline Co., Muskogee	Eram	Absp.	2,500
Water White Gasoline Co., Tulsa	Collinsville	Comp.	1,000
Waite Phillips, Okmulgee	Beggs	Comp.	1,000
White Oil Corp., Houston, Tex.	Drumright	Comp.	3,000
	Oneta	Comp.	2,000
Wilcox Oil & Gas Co., Tulsa	Beggs (2)	Comp.	1,000
	Slick	Absp.	5,000
Wolverine Oil Co. (Roxana), Tulsa	Avant (2)	Comp.	3,500
	Bartlesville (2)	Comp.	6,000
	Copan	Comp.	5,500
	Wayside	Comp.	3,000
	Dilliard	Absp.	600
Woodward, George, et al, Nowata	Nowata	Comp.	12,000
Wooster Oil Co., Tulsa	Nuyaka	Comp.	500
Aztec Oil Co., Tulsa	Tiger	Comp.	4,000
Anglo Texas Oil Co., Tulsa	Stone Bluff		1,000
Cushing Ref. & Gasoline Co., Cushing		Comp.	...
Hope Gasoline Co., Tulsa	Tulsa	Comp.	5,000
Hale & Cassidy, Cushing	Cushing	Absp.	650
Jonson Gasoline Co., Red Fork	Red Fork	Comp.	2,000
C. & S., Tulsa	Drumright	Comp.	250
Mid-Continent Oil Dev. Co., Okmulgee	Okmulgee	Comp.	11,500
Mohawk Ref. Co., Sand Springs	Sand Springs	Comp.	1,500
Rowland Gas Co., Shamrock	Chastain L.	Comp.	150
	Chapman L.	Comp.	100
	Wheeler L.	Comp.	1,000
	Oilton	Comp.	2,300
Smith, W. S., & Cleage, Tulsa	Stone Bluff	Comp.	1,000
			1,250

TEXAS

Name and P. O. Address—	Location Ldg. Pt.	Type	Dy. Av. Output (Gallons)
Absorption Gas Products Co., Breckenridge	Breckenridge	Absp.	450
American Refining Co., Wichita Falls	Burkburnett	Comp.	2,000
Arab Gasoline Corp., Philadelphia	Eastland (2)	Absp.	22,000
Arkansas Natural Gas Co., Shreveport	Eastland (2)	Absp.	2,250
	Breckenridge	Absp.	4,000
Atlantic Oil Producing Co., Dallas	Breckenridge	Absp.	10,000
Baltic Gas Co., Baltimore, Md.	Ranger	Absp.	2,500
Boner, H. E., Gasoline Co., Paola, Kans.	Caddo	Absp.	2,750
Brown Gasoline Co.-Helios, Dallas	Pioneer	Absp.	5,000
Breckenridge Gasoline Co., Hickok, Dallas	High Mount	Absp.	2,000
Cannon Gasoline Co., Amarillo	Amarillo	Absp.	750
Central Gasoline Prod. Co., Eliasville	Eliasville	Absp.	12,000
Chestnut & Smith Corp., Tulsa	Breckenridge (2)	Absp.	45,000
	Ranger (4)	Absp.	95,000
Clark & Boyd, Fort Worth	Breckenridge	Absp.	400
Creamer-Martin Interests, Desdemona	Desdemona	Absp.	2,000
De Witt Gas Co.-Absoline G. Co., B'kenridge	Breckenridge	Absp.	450
Desdemona Gasoline Co., Desdemona	Desdemona	Absp.	4,000
Dixie Gasoline Co., Cisco	Brownwood	Absp.	7,500
Eddy Gasoline Co., Cisco	Caddo	Absp.	6,500
Empire Gasoline Co., Bartlesville, Okla.	Ibex	Absp.	6,000
Finco Gas Production Co., Tulsa	Desdemona	Absp.	5,500
Great Texas Oil & Refining Co., Fort Worth	Breckenridge	Absp.	2,000
Gulf Production Co., Fort Worth	Burkburnett (3)	Comp.	3,300
	Breckenridge (6)	Absp.	50,000
	Electra (2)	Both	5,000
	Eliasville	Absp.	6,500
	Ranger	Absp.	4,000
Harrison, W. S., Cisco	Eastland	Absp.	15,000
Hi-Power Gasoline Co., Fort Worth	Breckenridge (2)	Absp.	5,000
Hirt Interests, Fort Worth	South Bend	Both	2,500
Hope Eng. & Supply Co.-J. T. G. Co., Tulsa	Frankell	Absp.	5,000
Humble Oil & Refining Co., Houston	Burburnett (2)	Comp.	7,000
	Desdemona	Comp.	6,500
Hurley Gasoline Co., Tulsa	Breckenridge	Absp.	7,200
Hydro-Carbon Gasoline Co., Fort Worth	Breckenridge	Absp.	1,000
Interstate Gasoline Co., Wichita Falls	Burkburnett	Comp.	11,500
Invader Oil & Refining Co., Muskogee, Okla.	Burkburnett	Comp.	2,000
Invincible Oil Corp., Fort Worth	Pioneer	Absp.	5,000
Landreth Oil Co., Fort Worth	Ibex	Absp.	7,500
Lone Star Gas Co., Dallas	Brazos	Absp.	3,000
	Gainesville	Absp.	4,000
	Graham	Absp.	8,000
	Petrolia (2)	Absp.	15,000
Lovell Gas Co., Breckenridge	Breckenridge	Absp.	400
Magnolia Petroleum Co., Dallas	Breckenridge	Both	5,700
	Breckenridge	Absp.	2,500
	Burkburnett (3)	Comp.	4,600
	Desdemona (6)	Comp.	37,000
	Electra	Comp.	3,000
	Olden (2)	Comp.	12,000
	Thrall	Comp.	450
Manhattan Gasoline Co., Tulsa	Burkburnett	Comp.	6,000
McMan Oil Co., Tulsa	Burkburnett	Comp.	22,000
	Desdemona	Comp.	6,000
	Pioneer	Absp.	7,500
Mid-Kansas Oil Co., Fort Worth	Desdemona	Comp.	2,000
	Eliasville (2)	Comp.	7,500
Mo-Del Gasoline Co., Breckenridge	Breckenridge	Absp.	1,000
Mystic Gasoline Co., Breckenridge	Breckenridge (3)	Absp.	2,500
National Gasoline Co., Breckenridge	Breckenridge	Absp.	5,500
	Pioneer	Absp.	12,000
National Products Co., Tulsa	Breckenridge (3)	Absp.	3,500
Noble Oil & Gas Co., Tulsa	Burkburnett	Comp.	22,500
Ockland Gas Products Co., Tulsa	Desdemona	Absp.	2,000
Panhandle Oil & Refining Co., Wichita Falls	Burkburnett	Absp.	4,500
	Electra	Comp.	
Phillips Petroleum Co., Bartlesville, Okla.	South Bend (4)	Absp.	2,500
Peer Oil Co., Houston	Burkburnett	Comp.	20,000
Plateau Gas Products Co., Breckenridge	Breckenridge (2)	Absp.	4,500
Red River Oil Co., Tulsa	Electra	Comp.	3,000
Rochester Gasoline Co., Rochester	Ivan	Absp.	1,500
Roeser & Pendleton, Breckenridge	Breckenridge (2)	Absp.	35,000
Sawyer Gasoline Co., Cincinnati, Ohio	Caddo	Absp.	7,200
Shamrock Oil Co., Breckenridge	Breckenridge	Absp.	600
Sinclair Oil & Gas Co., Tulsa	Burkburnett	Comp.	11,000
Skelly Oil Co., Tulsa	Burkburnett	Comp.	12,000
	Clara	Comp.	3,000
Snowden & McSweeney, New York	Breckenridge	Comp.	5,000
	Burkburnett	Absp.	3,000
Straits Oil Corp., Ranger	Ranger	Both	2,500
Swensondale Oil Co., Eastland	Eastland	Absp.	6,000
The Texas Co., Houston	Burkburnett	Absp.	18,000
	Electra	Comp.	7,500
	Moran	Comp.	1,000
	Parks	Absp.	7,000
Texas Gasoline Co., Desdemona	Desdemona	Absp.	9,000
Texas Pacific C. & O. Co., Thurber	Carroll	Absp.	8,500
	Mingus (3)	Absp.	1,000
Texhoma Oil & Refining Co., Wichita Falls	Burkburnett (2)	Absp.	6,300
Tidal-Western Oil Corp., Tulsa	Burkburnett (2)	Comp.	30,000

THE UNKNOWN LOAD
How Many Tons Pull?

It's the unknown load that tests a chain block—and this is the sort of load every chain block gets in the rough-and-ready service of the oil fields.

Yale Chain Blocks handle the unknown load safely and surely.

They will stand surge loads many times in excess of their rated capacity, and whenever a careless workman subjects the block to dangerously excessive strain, the patented Yale load hook, acting as a "safety valve," opens up gradually and gives ample warning.

Features such as this, with the line of steel from hook to hook, and the exceptionally rigid system of inspection through every stage to the final 50 per cent overload test, are the things that make Yale Chain Blocks the safest and most economical blocks you can buy. Leading dealers carry stocks of Yale Blocks and Trolleys.

YALE MADE IS YALE MARKED

YALE
Chain Blocks, Electric Hoists } For Lifts
I-Beam Trolleys, Industrial Trucks } For Shifts

YALE
YALE
YALE

The Yale & Towne Mfg. Co.
Makers of Yale Products: Locks, Door Closers, and Material Handling Equipment
Stamford, Conn., U. S. A.

YALE Hoisting and Conveying Systems

BARTLESVILLE SUPPLY COMPANY

Baker Casing Shoe

Manufacturers of the Famous

"BARSCO PRODUCTS"

Drive Shoes, Anchor and Casing Clamps, Male and Female Steel Nipples

Stocks carried by dealers for your convenience

California Pattern Shoe

Texas Pattern Shoe

HOME OFFICE:
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Regular Pattern Shoe

FACTORIES:
St. Louis, Mo.
Bartlesville, Okla.

M. & F. Steel Nipple

An Ideal Combination for Pumping

A four-cylinder motor with friction transmission cannot be surpassed for oil well operation.

The sturdy four-cylinder motor operates on natural gas or gasoline and can be started easily by one man in all kinds of weather. It requires less fuel and lubricating oil and has a range of speed from 500 to 1000 RPM.

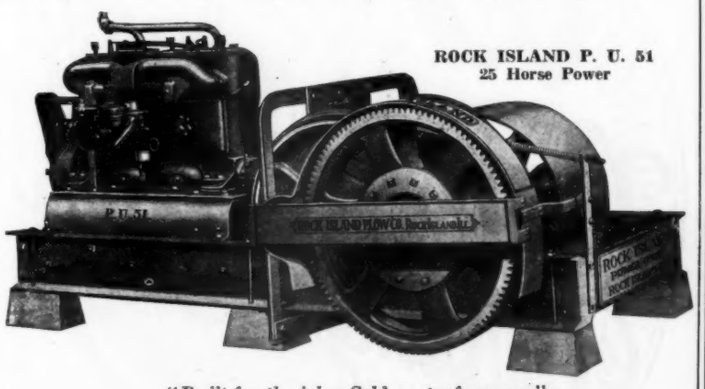
The friction transmission eliminates reverse gears and clutch mechanism, with fewer parts to wear, repair or worry. It has seven speeds forward and seven reverse for any given motor speed. It eliminates any possibility of jerking the load, thus greatly reducing danger of parting rods or breaking the cable.

Simple construction easily understood by the average operator.

Complete control from well platform.

Built for the job—sold on performance.

You should have the catalog describing in detail the Rock Island P U 51. Send for it.

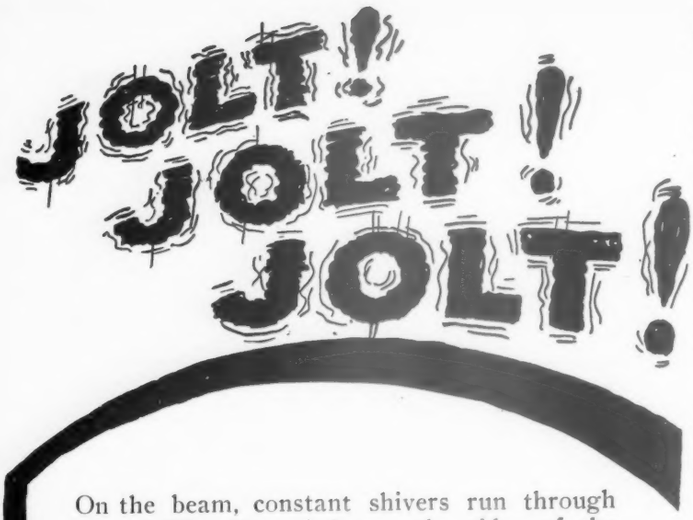


ROCK ISLAND P. U. 51
25 Horse Power

ROCK ISLAND PLOW COMPANY
Rock Island, Illinois

"Built for the job—Sold on performance"

P. O. Box No. 289 **C. F. CAMP AGENCY, DISTRIBUTORS, TULSA, OKLAHOMA** **311 Atco Bldg.**



On the beam, constant shivers run through your drilling line. It bangs the sides of the hole, stretches forcibly, springs back violently, carries a whale of a weight. That's why B & B Non-Kinking Drilling Lines are made strong, elastic, friction-resisting.

The slack above the screw dares not kink or there's the deuce to pay when the string is withdrawn. B & B Non-Kinking Drilling Line is soft-laid. It won't kink.

Top-speed bends over crown-block and drum play hob with "stiff" rope. B & B Non-Kinking Line is very pliable.

Drilling lines made for all fields, and to your special order. Write for Catalog K2, and name of nearest distributor.

Broderick & Bascom Rope Co., St. Louis, Mo.

Branches: **New York and Seattle**
Factories: **St. Louis and Seattle**

G-256

Tiger-Refining Co., Breckenridge	Breckenridge		Absp.	2,500
Western Gas Co., Cisco	Eliasville		Absp.	1,000
Western Gasoline Prod. Co., Breckenridge	Eliasville		Absp.	1,000
Tidal-Western, Tulsa	Clara		Comp.	10,000
	Clara			1,200

LOUISIANA

Name and P. O. Address—	Location Ldg. Pt.	Type	Dy. Av. Output (Gallons)
Atlas Oil Co., Shreveport	Swartz	Absp.	1,000
De Soto Gasoline Co., Beaumont	Goss	Comp.	500
Gilliland Oil Co., Tulsa	Homer	Comp.	4,000
Gulf Refining Co., Shreveport	Homer	Absp.	15,000
	Mooringsport	Comp.	5,200
	Naborton	Absp.	1,000
Huber, J. M., Co., Swartz	Swartz	Absp.	1,000
Magnolia Pet. Co., Dallas	Gahagan	Comp.	500
Nelson, Oscar, Monroe	....	Absp.	1,000
Southern Carbon Co., Monroe	Fairbanks	Absp.	3,000
	Perryville	Absp.	1,000
	Spyker	Absp.	1,000
	Swartz	Absp.	3,000
Standard Carbon Co., Monroe	Swartz	Absp.	2,500
Standard Oil Co. (La.), Shreveport	Homer	Absp.	10,000
The Texas Co., Houston	Goss	Comp.	3,500
	Oil City	Comp.	5,500
Tex.-La. Prod. Co., Monroe	....	Absp.	1,000
United O. & N. G. Prod., Monroe	....	Absp.	2,000
White Oil Corp., Houston	Homer	Absp.	5,000

ARKANSAS

Name and P. O. Address—	Location Ldg. Pt.	Type	Dy. Av. Output (Gallons)
Arkansas Natural Gas Co., Shreveport	El Dorado	Absp.	3,500
Constantin Oil Corp., Tulsa	El Dorado	Absp.	3,000
Henderson, F. C., El Dorado	El Dorado	Absp.	15,000
Koppers Company, Pittsburgh	El Dorado	Absp.	7,500
McMillman, Fehlman & Oliver, El Dorado	El Dorado	Absp.	3,500
Natural Gas & Pet. Corp., El Dorado	El Dorado	Absp.	6,000
Standard Oil Co. (La.), Shreveport	El Dorado	Absp.	7,500
Stebbins Gasoline Co., Tulsa	El Dorado	Comp.	2,500

WYOMING
Operating

Name—	Location	Type	Daily Y'ld Million Ft.	Daily Y'ld 1,000 Feet
Lovell Gasoline Co.	Byron	Refrg.	8	.25
Producers & Refiners Corp.	Casper	Absp.	40	.33
	Riverton	Absp.	8	.11
Hope Natural Gas Co.	Cowley	Absp.	6	1.25
Eastern Fuel Co.	Cowley	Absp.	10	1.25
Armstrong Gasoline Co.	Rock River	Absp.	2	1.5 to 2
Midwest Refining Co.	Elk Basin	Comp.	1½	3.5 to 4
	Salt Creek	Comp.	20	.3
Ohio Oil Co.	Grass Creek	Comp.	.9	5.5
Williams Oil Co.	Salt Creek	Comp.	1.5	1.5

Building

Midwest Refining Co.	Salt Creek	Comp.	12	....
Ohio Oil Co.	Salt Creek	Comp.	..	....
Producers & Refiners Corp.	Salt Creek	Both	20	....

CALIFORNIA

Name and P. O. Address—	Location Ldg. Pt.		Type	Dy. Av. Output (Gallons)
Hurley-Smith Co., Los Angeles	Anaheim		Comp.	350
Pacific Gasoline Co., Los Angeles	Brea		Comp.	8,000
La Habra Gasoline Co., Los Angeles	Brea		Comp.	900
St. Helens Petroleum Co., Los Angeles	Brea		Comp.	200
General Petroleum Corp., Los Angeles	Brea		Comp.	800
Shell Oil of Cal., Los Angeles	Brea		Comp.	6,000
Fullerton Oil Co., Los Angeles	Brea		Absp.	1,000
Wilshire Oil Co., Los Angeles	Huntington Beach		Comp.	10,000
Pacific Gasoline Co., Los Angeles	Huntington Beach		Absp.	10,000
Petroleum Midway, Ltd., Los Angeles	Huntington Beach		Absp.	5,000
O. C. Fields Gasoline Co., San Francisco	Huntington Beach		Absp.	20,000
Mutual (Castor, Joe) Rfg. Co., Huntington B.	Huntington Beach		.....	1,000
Globe Petroleum Corp., Los Angeles	Huntington Beach		.....	2,000
Union Oil of Cal., Los Angeles	Huntington Beach		.....	4,000
Standard Oil of Cal., San Francisco	Huntington Beach		Comp.	8,000
Shell Oil of Cal., Los Angeles	Huntington Beach		.....	6,000
Huntington Gasoline Co., Huntington Beach	Huntington Beach		Absp.	1,500
Mizpah Gasoline Co., Huntington Beach	Huntington Beach		Absp.	12,000
Selby-Root Gasoline Co., Huntington Beach	Huntington Beach		Absp.	10,000
High Power Co., Huntington Beach	Huntington Beach		.....	5,000
Holly Oil Co., Huntington Beach	Huntington Beach		Absp.	5,000
John F. Knudson Co., Huntington Beach	Huntington Beach		.....	5,000
M. H. Mosier, Huntington Beach	Huntington Beach		.....	2,000
Oil Rectifying & Mktg. Co., Huntington B.	Huntington Beach		.....	5,000
Pacific Gasoline Corp., Los Angeles	Olinda		Absp.	7,000
Olinda Gas Co., Los Angeles	Olinda		Refrg.	1,500
Olinda Gas Co., Los Angeles	Olinda		Comp.	7,000
Shell Oil of Cal., Los Angeles	La Habra		.....	2,000
St. Helens Petroleum, Los Angeles	Richfield		Absp.	400
Wonder Oil Co., Richfield	Richfield		Absp.	700
Standard Oil of Cal., San Francisco	Richfield		Absp.	20,000
West Coast Ref. Co., Los Angeles	Santa Maria		Absp.	3,000
Union Oil Co. of Cal., Los Angeles	Santa Maria		Absp.	20,000
Purity Gasoline Co., Los Angeles	Santa Maria		Absp.	3,500
Western Union (Shell of Cal.) Los Angeles	Salt Lake Field		Absp.	1,000
Hurley-Smith, Los Angeles	Salt Lake Field		Comp.	900
So. Cal. Edison Co., Los Angeles	Salt Lake Field		Comp.	400
Rancho La Brea Oil Co., Los Angeles	Salt Lake Field		Comp.	1,500
Gilmore Pet. Co., Los Angeles	San Joaquin Valley		Comp.	400
Associated Oil Co., Los Angeles	San Joaquin Valley		Absp.	3,700
Canadian Pacific Oil Co., Vancouver, B. C.	San Joaquin Valley		Absp.	300
Honolulu Cons. Oil Co., San Francisco	San Joaquin Valley		Both	16,000
Pacific Gasoline Co., Los Angeles	San Joaquin Valley		Both	55,000
Richfield Oil Co., Los Angeles	San Joaquin Valley		Both	2,200
Pan-American Oil Co., Los Angeles	San Joaquin Valley		Both	600
Standard Oil of Cal. (McNee 36), San F.	San Joaquin Valley		Both	40,000
Standard Oil of Cal., San Francisco	San Joaquin Valley		Both	....
Standard Oil of Cal., San Francisco	San Joaquin Valley		.....	15,000
Standard Oil of Cal. (Hay 36), San F.	San Joaquin Valley		Comp.	.....
Standard Oil of Cal. (Darby 16), San F.	San Joaquin Valley		Comp.	.....
Standard Oil of Cal. (Darby 16), San F.	San Joaquin Valley		Absp.	.....
Standard Oil of Cal. (Tupman), San F.	San Joaquin Valley		Comp.	.....
Standard Oil of Cal. (Eagle Creek), San F.	San Joaquin Valley		Comp.	1,500
North American Consolidated, San Francisco	San Joaquin Valley		Absp.	4,200
La Habra Gaso. Co. (Hurley-Smith), Los A.	San Joaquin Valley		Both	200
Olig Crude Oil Co., Los Angeles	San Joaquin Valley		Absp.	2,200
Sunset Gaso. Co. (St. Helens Pet.), Los A.	San Joaquin Valley		Absp.	1,200
Lowell Gaso. Co. (Boston Pacific), San F.	San Joaquin Valley		Both	4,000
Shell of Cal. (Coalinga), Los Angeles	Santa Fe Springs		Both	....
Sandoma Gaso. Co. (G. F. Getty), Los A.	Santa Fe Springs		Absp.	35,000
Gen. Petroleum Corp., Los Angeles	Santa Fe Springs		Absp.	2,000
Tremayne Refineries, Long Beach	Santa Fe Springs		Absp.	6,000
Standard Oil of Cal., San Francisco	Santa Fe Springs		.....	4,000
Pacific Gasoline Co., Los Angeles	Santa Fe Springs		.....	4,000
Union Oil Co. of Cal., Los Angeles	Santa Fe Springs		.....	10,000
Norwalk Co., Los Angeles	Santa Fe Springs		Absp.	5,000
Sonada Gasoline Co., Los Angeles	Santa Fe Springs		Absp.	10,000
Industrial Fuel Supply Co., Los Nietos	Santa Fe Springs		Absp.	6,000
Gilmore Petroleum Co., Los Angeles	Signal Hill		Both	10,000
Shell Oil Co. of Cal., Los Angeles	Signal Hill		Absp.	10,000
Signal Hill Gasoline Co., Los Angeles	Signal Hill		Absp.	6,500
California Gasoline Co., Los Angeles	Signal Hill		Absp.	4,500
Signal Gasoline Co., Long Beach	Signal Hill		Absp.	20,000
Bankline Oil Co., Los Angeles	Signal Hill		Absp.	10,000
Southwest Gasoline Co., Los Angeles	Signal Hill		Absp.	1,000
Union Oil Co. of Cal., Los Angeles	Signal Hill		.....	5,000
Tidal Gasoline Co., Long Beach	Signal Hill		Absp.	20,000
Petroleum Midway, Ltd., Los Angeles	Signal Hill		Absp.	4,000
Dabney Oil Syndicate, Los Angeles	Signal Hill		Absp.	.....
Sterling Gasoline Co., Long Beach	Signal Hill		Absp.	.....
Santa Fe Carbon Co., Los Angeles	Signal Hill		Absp.	5,000
Petrol Corp. (Wadolene) Los Angeles	Signal Hill		.....	.....
Petroleum Co., Los Angeles	Signal Hill		.....	.....

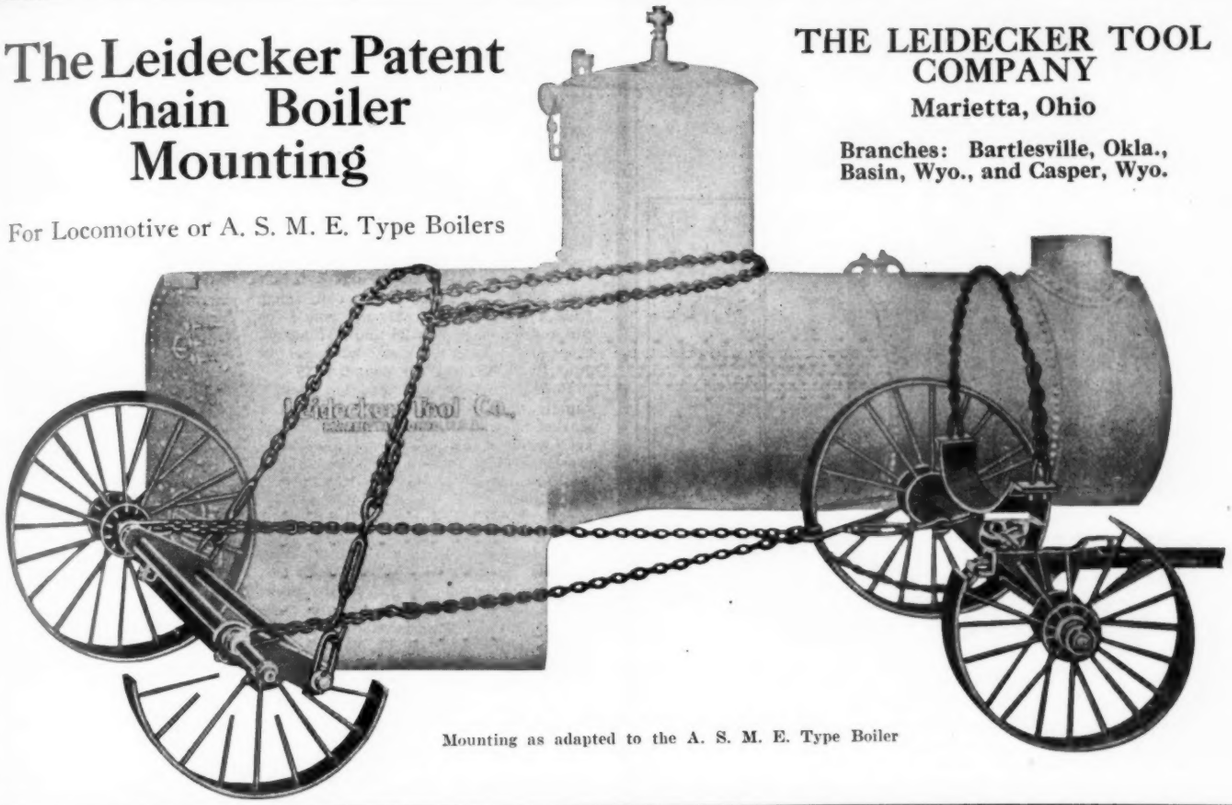
(Continued on Page 88)

The Leidecker Patent Chain Boiler Mounting

For Locomotive or A. S. M. E. Type Boilers

THE LEIDECKER TOOL COMPANY
Marietta, Ohio

Branches: Bartlesville, Okla., Basin, Wyo., and Casper, Wyo.



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THIS service consists of drilling and equipping wells and leases. Righting bad holes and fishing for operators and drilling contractors. Developing and managing oil and gas properties. Determining proper casing points and weights of casing to use. Removing water from flooded wells. Renovating old wells.

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Engineering Instruments *for the* **Oil Industry**

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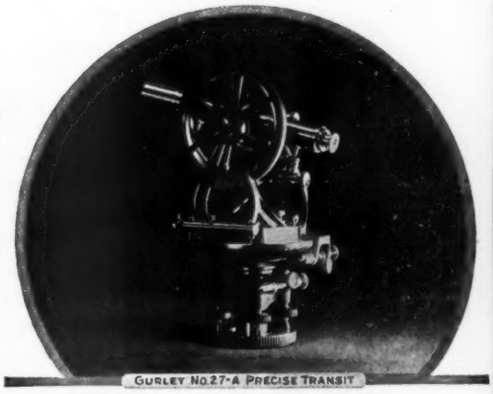

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Unusual accuracy and refinement of design and construction in an instrument is frequently associated with delicacy. But not when your transit is a Gurley. Every Gurley has the ruggedness built into it that enables it to stand severe service.

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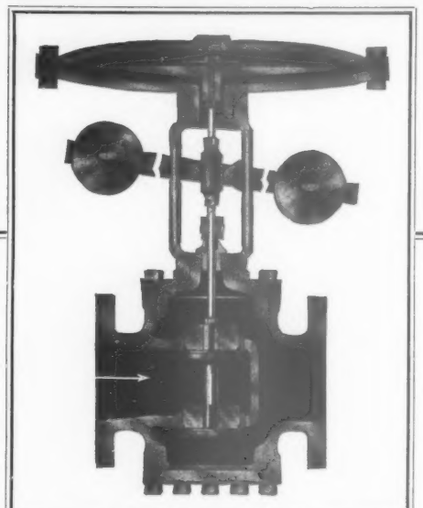

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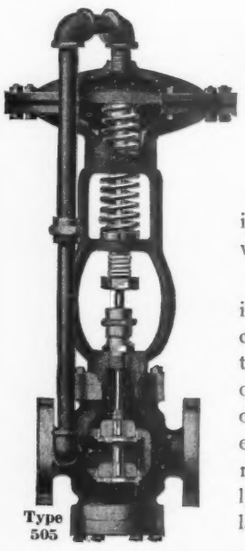
Can be used in steam lines ahead of compressors or, where steam driven compressors are used, in the suction lines from compressors to tanks.



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Diaphragm Actuated Relief Valve

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THE FISHER GOVERNOR CO.
Dependable Power Plant Specialties
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FISHER

LUBRICATING OILS AND WAX FEATURE ATLANTIC COAST REFINED OIL MARKETS

By N. O. Fanning

NEW YORK, Dec. 24.—Strength in the market for lubricating oils and wax featured the refined oil situation on the Atlantic Seaboard during the past week. Advances of 1 cent per gallon were made in the price of extra light filtered cylinder oil, as well as light filter and 600 steam refined. This was largely in sympathy with an advance in the price of Pennsylvania crude and in the refinery prices in the Pennsylvania district announced recently.

Wax has been a particularly bright spot in the market. Prices now range from 4 cents to 5⅜ cents per pound for full refined, between 120 and 137 a.m.p., these prices representing advances of from ⅝ to ⅛ cent per pound.

Both lubricants and wax are moving rapidly to the domestic trade. The wax market is enjoying a record holiday market, while many new yearly contracts are being made for lubricants based on a heavier volume of business than 1923. There is also said to be last-minute buying on the part of foreign consumers who anticipate higher prices in 1924. One large domestic contract for lubricating oils has been placed by The Texas Co., which calls for supplying the entire needs of one of the large local traction companies for the coming year. The price is said to represent a slight advance over the 1923 quotations.

Trade Awaits Crude Advances

The local trade is somewhat disappointed over the failure of Mid-Continent and California crude oil prices to advance in line with Pennsylvania. However, advances in the former fields are expected early next year. Meanwhile there is no indication of an advance in the price of gasoline. Supplies of these products seem plentiful at local refineries and in jobbers' hands, while the decline in Powell and California production has not as yet been so far reaching as to cause a scarcity of high-grade gasoline yielding crudes. The movement of California crude through the Panama Canal to eastern plants has shown no sign of abating and it can be, said that eastern refiners look forward to getting a continuous supply from the Pacific Coast throughout 1924.

The result of this is that the trade here does not expect any sharp rise in the price of gasoline this winter, although it may come early in the spring, depending on the situation at that time of course.

Although last minute orders are causing a heavy outward movement of lubricating oil and gasoline, especially to Europe, there is a noticeable scarcity of contracts for future delivery. This is believed to reflect heavy stocks abroad, as far as these products are concerned. Case oil business is picking up, however, although it is not of particularly large proportions. No new export cargo fixtures have been reported this week but one steamer has been chartered to carry California gasoline to Philadelphia at 67½ cents per barrel, prompt delivery. This is said to be a shipping board vessel, under charter to the Atlantic Refining Co.

It is reported here that a movement is under way on the part of several of the big Standard Oil units to develop inland water transportation facilities for the carrying of refined oil products from refineries to the consumption centers. These units include Standard of Indiana and Standard of Ohio, which are planning to improve harbor facilities, bunkering facilities and transportation facilities on the Great Lakes, and Standard Oil of New York and New Jersey, both of which are said to be planning to use the Hudson River and inland water ways as far as possible. The New York company may ship some of its production from the New York plant as far away as Buffalo by water, using the Barge Canal, instead of shipping by rail.

If this plan works out, the railroads will lose a fairly large business, and the pipe line companies may also be affected somewhat. The big refiners have long recognized the advantage of water transportation for long hauls; now they are turning to the same means for short hauls.

Eastern Refinery Operations

Smaller receipts of oil at Atlantic Coast ports are believed to reflect anticipations of a seasonal slump in refinery operations in this district. This week's movement was the smallest in more than six months, averaging only 310,000 barrels, according to estimates. This contrasts with record receipts the week before; nevertheless, the average of the two indicates at least a small decline in December's receipts, compared with the preceding month.

During the past 10 weeks, receipts of crude and refined oil at Atlantic ports averaged 437,000 barrels daily, of which 183,000 barrels came from Gulf ports, 141,000 barrels from Pacific ports and 113,000 barrels from Mexico, Trinidad and Peru. These estimates are based on the tanker movement.

The following table shows estimated daily average receipts of crude and refined oil by water at the principal Atlantic Coast ports for the last two weeks and for the months of November and October, 1923 (in barrels):

	Week Ended		Month	
	Dec. 21	Dec. 14	Nov.	Oct.
New York	142,000	200,000	215,000	236,000
Philadelphia	28,000	186,000	95,000	103,000
Baltimore	21,000	91,000	28,000	41,000
Boston	22,000	29,000	24,000	25,000
Fall River	11,000	16,000	9,000	18,000
Providence	63,000	4,000	13,000	17,000
Norfolk	.....	11,000	12,000	9,000
Charleston	.....	32,000	11,000	11,000
Miscellaneous	23,000	26,000	29,000	31,000
Total daily average	310,000	595,000	436,000	493,000

Providence, R. I., which became a big oil port when the Standard Oil Co. of New York and The Texas Co., built refineries there, achieved a record during the week ended December 21, with receipts by water of 63,000 barrels of crude and refined oil daily, an average second only to that achieved by New York during this particular week.

N. P. M. A. DIRECTORS MEET

An important meeting of the directors of the National Petroleum Marketers Association will be held at the Chicago headquarters of the association January 5. According to L. V. Nicholas, president, the association's program for the coming year will be discussed and an executive committee appointed.

REFINERY FOR CAMDEN, ARK.

CAMDEN, Ark., Dec. 22.—The Houston Oil Co. plans to erect a refinery here according to official information. It is understood the company will build a 5,000-bbl. plant with cracking units. The company has a contract with the Cotton Belt railroad for fuel oil and this product will be delivered to the railroad here.

To Our Many Friends and Customers:

We take this opportunity to wish you a very Happy and Prosperous New Year.

Reid Receiving Boxes and Manifolds for Oil Refiners

Are designed for sampling and cutting the oil as it comes from the stills. They are gas and oil tight. Polished wire plate glass is furnished with each box.

Special patterns made to Specifications.

Ask for Bulletin No. 24

JOSEPH REID GAS ENGINE COMPANY

OIL CITY, PENNSYLVANIA

Branches and Agencies: Marietta, Ohio; Logan, Ohio; Newark, Ohio; Fort Recovery, Ohio; Haynesville, La.; Shreveport, La.; Charleston, W. Va.; R. B. Moore, Bolivar, N. Y.; Bradford Supply Co., Robinson, Ill.; Frick & Lindsay Co., Kentucky Distributors; S. R. Shoup, 708 Pacific Electric Bldg., Los Angeles, Calif., Oklahoma, Kansas, Texas, Arkansas and Wyoming; Frick-Reid Supply Co., Tulsa, Okla., and Branches. Branch Shop: Tulsa, Okla.

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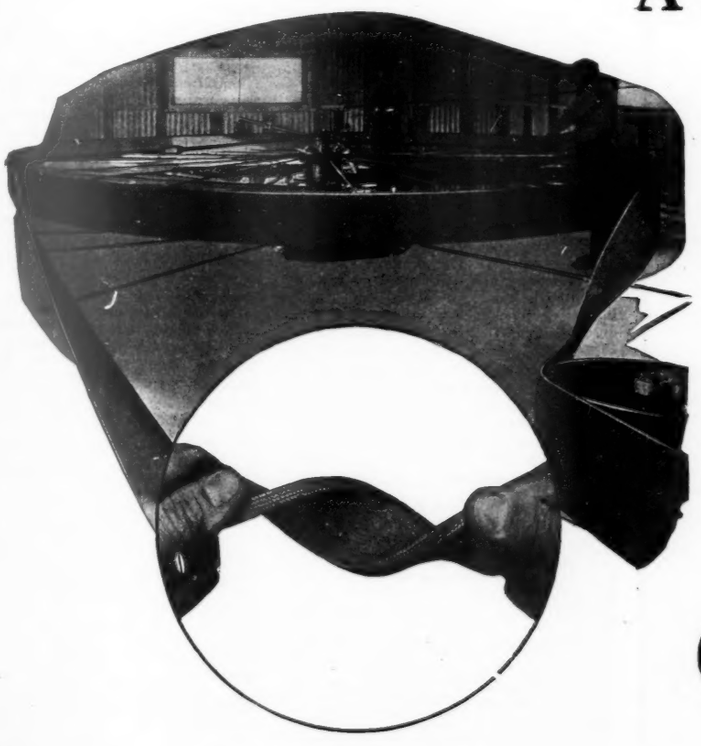

"Best in the Long Run"

The quarter-turn from counter shaft to idler—and the half-turn from idler to wheel—may be a backbreaker for ordinary belts, but not for Goodrich "COMMANDER."

The pictorial insert partly tells you why. "COMMANDER" is flexibility itself. No trouble at all for it to take these twists and turns easily and effortlessly—as simple for "COMMANDER" as a straight away drive. No ply separation—and all the power in the world.

You'll save money using "COMMANDER" here—many oil men will tell you so.

THE B. F. GOODRICH RUBBER COMPANY
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Goodrich
Commander
TRANSMISSION BELTS

Almost 100% Efficient

ABEL & ALLEN CONTRACTORS in the Powell Field near Corsicana, Texas, have just completed their seventh well using DREADNAUGHT rig. The seventh hole was drilled a little over 2,600 feet in eight days actual drilling time.

One Dreadnaught Giant Pump has done all the work. On account of unusual conditions the last hole being on a hillside the actual lift on this pump was 22 feet. When you consider the fact that a perfect pump will only lift clear water approximately 29 feet and taking into consideration the excess weight of mud over clear water a lift of 22 feet is almost 100% efficient.

You will find the entire Dreadnaught line redesigned and up to the minute. It will pay you to investigate.

Beaumont Iron Works Company

BEAUMONT, TEXAS

NEW FILLING STATION COUPONS SAFER AND MORE CONVENIENT

CHICAGO, Dec. 24.—The marvelous development of the retail branch of the oil business during the past few years has been noticed by business men in other lines. Not a few have profited along with the dispenser of gasoline and motor oils. One of the industries that has been quick to realize the importance of the oil business and has taken advantage of its part in making sales has been the printer and salesman of coupon books.

The first coupon books were offered customers at filling stations about 10 years ago, according to Rand, McNally & Co., of Chicago, which concern then realized the possibilities for new business in cooperation with the oil industry. With the development of retail oil sales, coupon books were used to a larger extent and several changes in the form of the books have been made recently which have been appreciated alike by the filling station operator and the purchaser of gasoline.

From the beginning great precaution had to be used by the oil companies having a national distribution of refined products to select the particular style of book which would protect both the issuing company and the public from unscrupulous duplication. With the perfection of this feature the use of coupons in dispensing gasoline, oil, grease, accessories and performing service for motorists has become an essential according to some companies. One of the recent developments leading to greater security and convenience for both motorist and filling station operator is the strip-style coupon book.

New Style Book

The books are generally issued containing $10 worth of coupons. The new style book contains a long folded strip, with small perforations separating the tiny 1-cent portions and heavy black lines giving additional marking for the 5-cent divisions. As purchases are made the strip is pulled out and torn off at the necessary place. Some companies use only 5-cent divisions on the strip with the 1-cent coupons contained in a separate place in the back of the book. The favorite method with motorists is the single-strip 1-cent perforation style.

The strip-style book is used by large national distributors such as the Standard Oil Co. of Indiana, The Texas Co., the Continental Oil Co. and others. Most of these companies assert that the coupons in the book will be accepted as payment at the company's filling stations and by most dealers handling the company's products. The coupons are good for one year and are non-transferable. Some have handy oil charts and tables for the convenience of the motorist as an additional feature of the book.

Many companies, however, continue to use the older style self-indicating or "tear-off" coupon book. These are fundamentally similar to ice or milk coupon books, containing a fixed number of 50-cent, 25-cent, 10-cent, 5-cent and 1-cent coupons, the total of which equals the amount noted on the book. The $10 size is favored by most users.

Good Investment

The majority of companies operating filling stations using coupon books assert they find their use to be a good investment. They say the use of the books increases sales and makes trade permanent at filling stations. It is a fact that coupon books affords a simple, safe and sure way of eliminating a large amount of charge-making at the station and accompanying waste of time by motorist and attendant. Most companies offer an appreciable discount for cash with the purchase of the book. In a year the discount often becomes noticeable.

Dealers assert that the use of coupon books on either a cash or credit basis reduces bookkeeping to a minimum, as the only entry is made at the time the book is sold to the customers. Some companies keep an individual record of the coupons taken in for each book, and the general method is to have an envelope with the customer's name and the number of the book written near the top, which can be filed away according to the name or the number of the book. As the collected coupons are checked up they are then placed in the envelope for ready reference when desired. Notation of each collection may be made on the outside of the envelope to facilitate the record. Many concerns, after checking up the coupons at the end of the day, destroy them. Regardless of the method, collected coupons are generally cancelled immediately upon receipt by the auditor, forestalling any misappropriation.

One large company with coupon books for sales is giving no discount for cash to the customer. The use of the coupon book is looked upon by it as a means of convenience for the customer only. Other concerns give discounts varying from 2 per cent to as much as 10 per cent. On the $10 book the saving would be from 20 cents to $1. Companies often use the coupon book method for stimulating or increasing sales by making larger discounts than their competitors.

Small charges for service at filling stations are often made against motorists. The use of coupon books eliminates the necessity for keeping account of these small items and sending the customer a statement at the end of the month. Coupons, salesmen say, eliminate the bother of making change with other motors waiting in the driveway, or neglecting other customers to make an entry in the concern's book. Disputes over monthly statements are also eliminated by the use of coupons.

Oil concerns also declare that the coupon books effectively advertise the business and goods of the concern, when used by motorists. They feel that the coupon has come to stay as a prominent feature of the work of filling 13,000,000 tanks emptied periodically by American motorists.

(Continued from Page 84)

Golden State Refineries, Inc., Los Angeles	Signal Hill	Absp.	2,000
Torrance Gasoline & Ref. Co., Torrance	Torrance	Absp.	5,000
Long Beach Gaso. & Ref. Co., Long Beach	Ventura	.....	10,000
Shell Oil of Cal., Los Angeles	Ventura	Absp.	500
Pacific Gasoline Co., Los Angeles	Whittier	Absp.	2,500
Standard Oil of Cal., San Francisco	Whittier	Comp.	.....
American Gas Co., Los Angeles	Fillmore	.....	.....
Calumet Oil Co., Los Angeles	Fillmore	Comp.	450
Montebello Oil Co. (Ventura Ref.), Los A.	Fillmore	.....	.....
New Penn. Pet. Co., Santa Maria	Fillmore	.....	.....
Ventura Refining Co. Los Angeles	Santa Paula	.....	1,000
Ventura Refining Co. Los Angeles	Montebello	.....	5,000
Red Star Petroleum Co., Los Angeles	....	Absp.	1,000
Tremayne Refineries, Long Beach	Santa Fe Springs	.....	.....
Tremayne Refineries, Long Beach	Huntington Beach	.....	.....
Midway Gas Co., Los Angeles	Santa Fe Springs	.....	.....
Hydro-Carbon Products Co., Los Angeles	....	.....	.....
Petrol Corp., Los Angeles	.....	.....	20,000
Wadol Process Co., Los Angeles	....	Absp.	.....
U. S. Ref. Co. (Sub. U. S. Royalties), Los A.	Santa Fe Springs	.....	.....
Shell of Cal., Los Angeles	Brea	.....	.....
Standard of Cal., San Francisco	Santa Fe Springs	.....	.....
Shell of Cal., Los Angeles	Olinda	.....	.....
Union Oil Co. of Cal., Los Angeles	Santa Fe Springs	.....	.....
Wadelene Ref. Corp., Los Angeles	Alhambra	.....	.....

BRITISH ANXIOUS ABOUT THE PETROLEUM SUPPLY

(Continued from Page 56)

achieved. The raw materials for the manufacture of alcohol on a commercial scale exists within the empire, and it depends upon the successful prosecution of present research whether it becomes a practical proposition or not. The chief difficulty, however, and one that has so far not been solved, is to find a sufficiency of suitable raw material within a given area to render commercial exploitation profitable. Then again, it is suggested that alternative fuels may be obtained by the hydrogenation of some of the heavier hydrocarbons, such as solid napthaline; but, although used in Germany, such fuels are not likely to be used alone, but only as a mixture with other materials.

What Is Required

In discussing the merits and demerits of various fuels we are apt to miss the general question. What we require is something which is readily portable and when subjected to a simple chemical process increases its bulk more or less rapidly or causes gas or vapor to increase its bulk. By this means we can at will transform the readily portable materials into a means of producing mechanical power. So far, the only range of substance which have been found to be commercially suitable for this purpose are the hydrocarbons. The hydrocarbons are used in either solid, liquid or gaseous forms, and on combustion produce gas at a high temperature, occupying many times the volume of the original hydrocarbon.

This phenomenon takes place with varying degrees of rapidity, and is called by different names according to the speed with which the transformation takes place. The phenomenon is the same in the general scheme of its chemical changes, whether we burn coal to produce heat, to raise steam, or explode a petrol mixture inside a cylinder to drive a piston, or detonate a charge of gelignite to throw down a mass of rock in a quarry, or detonate a bomb dropped from an airplane to destroy half a city. The difference is only one of time. We possess an enormous supply of the best type of solid hydrocarbon—namely, coal—but we do not possess the only natural liquid hydrocarbon at present known, which exists in large quantities—namely, petroleum.

By the progress of engineering science we have produced an engine using liquid hydrocarbon, which is far more economical and efficient for certain purposes of transport than engines using solid hydrocarbons, and we have thereby made ourselves entirely dependent upon adequate supplies of petroleum being forthcoming. At the phesent moment the position is that we are absolutely dependent on adequate supplies of petroleum. There is no prospect that these will not be forthcoming under normal circumstances, but the control is not in our hands. The wells from which the petroleum comes lie for the most part in foreign countries, and in a very large measure the control of this supply is also in foreign hands. At the same time it is known that under certain conditions solid hydrocarbons, of which we possess an ample supply, can be broken up and will yield products which can be used in internal combustion engines, but so far this has not proved a commercial success. In view of the extreme importance of securing under all circumstances the supply of adequate quantities of suitable liquid fuel for transport purposes, I would suggest that a national policy is clearly indicated, namely, to consolidate such control as we possess over existing oil fields and to push forward research work to perfect the process by which our ample store of solid hydrocarbons can be converted economically into the all-essential liquid form.

NORTH CENTRAL TEXAS

(Continued from Page 44)

others' No. 1 Ford, drilling in blue shale at 1,655 feet; Sun Oil Co.'s No. 3 Farmer, drilling at 1,435 feet; Sunshine State Oil & Refining Co.'s No. 14 Carter Brothers, drilling at 405 feet; No. 2 Parrish, drilling in rock at 1,255 feet; Underwood Drilling Co.'s No. 3 Wilmont, drilling at 975 feet; No. 1 Wilson, 1,250 feet of oil in the hole from a sand at 1,600 feet; Wall-Duke Oil Co.'s No. 1 Garvey, drilling at 555 feet.

Young County

Drilling: Bullington and others' No. 1 Campbell, drilling at 200 feet; Byerns and others' No. 1 Mahoney, cleaning out and running 5⅞-inch casing at 3,933 feet; Gulf Production Co.'s No. 1-A Hockaday, 2,500 feet of oil in the hole and drilling at 4,195 feet; Harrown and others' No. 1 Vick, drilling at 330 feet; Logan and others' No. 1 Wild, drilling at 740 feet; McGuire and others' No. 1 Carter, fishing for casing at 1,875 feet; McKenzie and others' No. 1 Logan, shut down for fuel oil at 600 feet; Mann and others' No. 5 Whittenburg, drilling in sand with a show of oil at 1,770 feet; Mid-Kansas Oil & Gas Co.'s No. 1 Moren, fishing for casing at 1,865 feet; Nash and others' No. 1 Bower, drilling at 500 feet; North American Refining Co.'s No. 1-B Scott, fishing job at 3,800 feet; Richardson and others' No. 1 Wilburn, drilling at 345 feet; Seaboard Oil Co.'s No. 4 Hughes, drilling at 1,405 feet; Shamrock Oil Co.'s No. 3-A Bower, drilling in blue shale at 1,760 feet; Weekley and others' No. 3 McLaren, drilling at 2,440 feet.

Stephens County

Completions.—Weekley Petroleum Co.'s No. 2 Martin, 320 bbls. at 3,880 feet; Magnolia Petroleum Co.'s No. 12 Rush, 50 bbls. at 3,195 feet; same company's No. 4 Walker, 7,000,000 feet of gas at 3,050 feet.

Drilling.—Mid-Kansas Oil & Gas Co.'s No. 2 Couger, showing both oil and gas and drilling at 3,120 feet; Rochelle and others' No. 1 Sweeney, drilling at 355 feet; Corts and others' No. 1 Parks, fishing for casing at 3,920 feet; Curry Pool Oil Co.'s No. 1 Compton, drilling at 805 feet; Fidelity Oil Co.'s No. 1 Parks, spudding; Graham and others' No. 1 Saunders, drilling at 1,630 feet; Haile and others' No. 1-B Jones, drilling in brown shale at 555 feet; Magnolia Petroleum Co.'s No. 4 Brown, underreaming for 5-inch casing at 3,435 feet; Mahlstedt & Mook Oil Co.'s No. 1 Boyett, running 5-inch casing at 3,420 feet; Price and others' No. 2 Bruce, drilling at 1,845 feet; Qualey Oil Co.'s No. 1 Bradford, drilling at 1,655 feet; Rosser & Pendleton's No. 5 Jones, fishing for tools at 2,225 feet; Scott and others' No. 2 Davis, drilling at 805 feet; Sinclair Oil Co.'s No. 5 Henderson, drilling at 2,055 feet; Swensondale Oil Co.'s No. 1 Harrington, drilling at 515 feet; Texas & Pacific Coal & Oil Co.'s No. 3 Ashmore, fishing for casing at 2,170 feet.

Eastland County

Completions.—Gates Oil Co.'s No. 4 Hopkins, 40 bbls. at 2,615 feet; Humble Oil & Refining Co.'s No. 4 Merrill, 20 bbls. at 1,235 feet.

Drilling.—Ablon and others' No. 1 Collins, cleaning out at 3,505 feet; Donnelly Brothers' No. 1 Brelsford, drilling at 605 feet; Knox-Lewis Oil Co.'s No. 2 Edison, drilling at 2,005 feet; Magnolia Petroleum Co.'s No. 4 Ross, drilling at 1,500 feet; McLester and others' No. 2 Westmoreland, drilling at 1,000 feet; Ocheltree and others' No. 1 Webb, drilling in blue shale at 1,005 feet; Panhandle Oil & Refining Co.'s No. 7 Hightower, drilling in an oil sand at 1,215 feet; Root and others' No. 4 Bond, drilling in lime at 3,405 feet; Clayton and others' No. 1 Harwood, set 8¼-inch casing at 2,300 feet; No. 1 Rio Bravo, cleaning out at 2,200 feet; Daugherty and others' No. 1 Johnson, underreaming at 1,620 feet; Mayhew and others' No. 1 Luse, setting 5⅞-inch casing at 2,880 feet; Root and others' No. 1 Walker, fishing for casing and will shoot in lime at 3,550 feet; No. 4 Carter, drilling in hard lime at 3,535 feet; Texas Development Co.'s No. 1 Lewis, drilling in shale and lime at 2,910 feet; Prairie Oil & Gas Co.'s No. 5-A Brooks, drilling at 2,995 feet.

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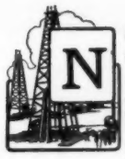

NO OTHER man in the organization finds as much pleasure in his work as does the one whose appointed task it is to hold the curtains aside that the industry it serves may see and understand the inner workin's of the Frick-Reid Supply Co.

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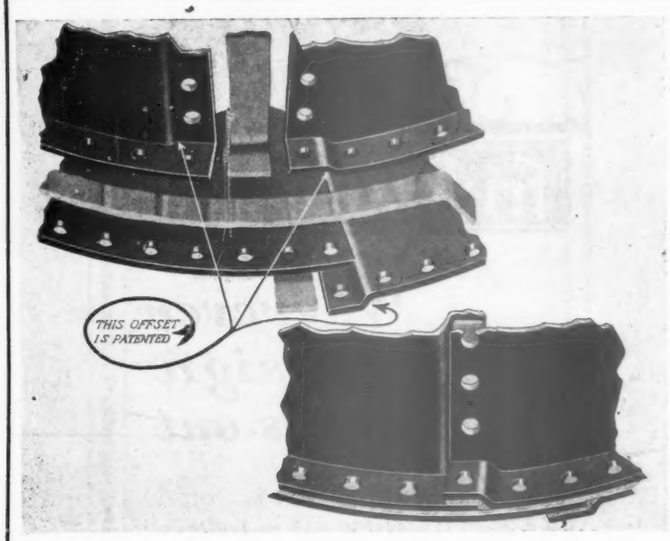

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MALONEY TANKS

Baylor County: Completions — Waggoner and others' No. 1 Portwood, dry at 2,003 feet.

Clay County: Drilling — Crude Oil Production Co.'s No. 1 Kinder, drilling in shale at 1,020 feet; Gulf Production Co.'s No. 1-A Boddy, fishing for four joints of casing at 2,790 feet; No. 3 Worsham, underreaming at 660 feet; Lone Star Gas Co.'s No. 9 Skelly, drilling in rock at 1,095 feet; No. 7 Panhandle, drilling in shale at 1,665 feet; Nebraska Oil & Gas Co.'s No. 1 Myers, drilling at 3,285 feet.

Jack County: Drilling—Duncan and others' No. 1 Woodward, fishing at 1,305 feet.

Knox County: Drilling—Brazos Bend Oil Co.'s No. 1 Clark, drilling at 1,865 feet.

Montague County: Drilling—Amerada Oil Co.'s No. 1-A Beasley, fishing job at 3,030 feet; Gulf Production Co.'s No. 1 Benton, repairing the boiler at 2,860 feet; Mascho Oil Co.'s No. 1 Howard, drilling in shale at 2,170 feet.

Throckmorton County: Drilling—Monroe Production Co.'s No. 1 Ray, spudding; Richardson and others' No. 1 Reynolds Ranch, sand showing oil and gas and drilling at 940 feet.

Armstrong County: Drilling — Magnolia Petroleum Co.'s No. 1 J. A. Ranch, drilling in hard lime at 3,605 feet.

Carson County: Drilling—The Texas Co.'s No. 3 Burnett, drilling in rock at 770 feet; Gulf Production Co.'s No. 3-A Burnett, fishing for pipe at 3,145 feet; Humphreys Oil Co.'s No. 1 Sandford, fishing for one string of tools at 2,530 feet; Silk and others' No. 3 Burnett, drilling in rock salt at 1,505 feet.

Dallam County: Drilling—Kellerman and others' No. 1 James, drilling by junk at 1,640 feet.

Gray County: Drilling — Holmes and others' No. 1 Morris, underreaming 12½-inch casing at 900 feet.

Hemphill County: Drilling—Piney Oil Co.'s No. 1 Hopkins, drilling in lime shells and shale at 2,825 feet.

Hutchinson County: Drilling—Coline Oil Co.'s No. 1 Sandford, drilling by tools at 3,225 feet; Humphreys Oil Co.'s No. 1 Johnson, drilling at 2,585 feet; Montgomery and others' No. 1 Johnson, underreaming 10-inch casing at 1,760 feet; McGee and others' No. 1 Smith Capers, cleaning out at 3,175 feet; Producers & Refiners Corp.'s No. 1-B Bivens, drilling in rock at 1,205 feet.

Potter County: Drilling — Producers & Refiners Corp.'s No. 2 Masterson, drilling in blue shale at 2,955 feet; No. 1-A Bivens, drilling in red beds at 2,305 feet; No. 2-A Bivens, drilling in shale at 1,205 feet.

Wheeler County: Drilling—Tyrell and others' No. 1 Sheldon, drilling at 1,105 feet.

Palo Pinto County: Completions—Republic Production Co.'s No. 1 Stewart, dry at 2,860 feet.

Drilling—Texas & Pacific C. & O. Co.'s No. 1 Robinson, drilling by tools at 3,585 feet; same company's No. 144 Stewart, fishing for casing at 1,700 feet; Costello and others' No. 1 Costello, sand showing oil estimated at 10 bbls., will probably shoot at 2,495 feet; Jones and others' No. 1 Jones, running 6-inch casing at 3,390 feet; Nelson and others' No. 2 Finch, plugging back from 4,150 to 3,300 feet, and will shoot a lime formation at the shallower depth; Scott and others' No. 1 River Bed, fishing for tools at 3,715 feet; Simms Oil Co.'s No. 1 Costello, running 6-inch casing with traces of oil in lime at 3,820 feet.

Brown County: Completions—Gillett and others' No. 2 Prather, 35 bbls. at 1,310 feet; Gillman and others' No. 4 Newlin, 20 bbls. at 1,295 feet.

Mitchell County: Drilling — Kelsay and others' No. 1 Badgett, cleaning out at 3,120 feet; Sloan and others' No. 2 Smart, drilling in shale at 2,355 feet; California Co.'s No. 1 Morrison, waiting on cement to set before drilling deeper at 3,925; No. 2 Miller, drilling at 330 feet; No. 1 Reilly-Morrison, cleaning out at 3,030 feet.

Shackelford County: Completions—Humble Oil & Refining Co.'s No. 1 Elliott, dry at 2,140 feet.

Drilling—Connelly and others' No. 1 Parrish, drilling below 535 feet; Humble Oil & Refining Co.'s No. 1 Jackson, drilling in black lime at 3,215 feet; No. 1-B Poindexter, sidereamming 8-inch casing at 2,112 feet; Landreth Oil Co.'s No. 1 Poindexter, drilling up underreaming tool at 2,300 feet; Texhoma Oil & Refining Co.'s No. 2 Balch, drilling below 2,655 feet.

PRODUCTION REPORT

Week Ending December 20, 1913

Burkburnett

American Ref. Co.	280
Barkley & Meadows	2,035
Humble Oil & Ref. Co.	640
Gulf Production Co.	1,780
Magnolia Pet. Co.	3,635
Middle States Oil Corp.	250
McMahon Oil Co.	435
Panhandle Ref. Co.	500
Sinclair Oil & Gas Co.	55
The Texas Co.	735
Texhoma Oil & Ref. Co.	606
Miscellaneous	11,065
Total	22,915

Electra

Empire Gas & Fuel Co.	1,585
Humble Oil & Ref. Co.	125
Griswold Oil Co.	460
Gulf Prod. Co.	995
Magnolia Petroleum Co.	4,525
Middle States Oil Co.	170
McMahon Oil Co.	210
The Texas Co.	5,150
Texhoma Oil & Ref. Co.	2,465
Miscellaneous	4,150
Total	20,135

Iowa Park, Archer County and Petrolia

Iowa Park—	
American Ref. Co.	40
Griswold Oil Co.	30
Gulf Production Co.	50
Middle States Oil Co.	10
Texhoma Oil & Ref. Co.	45
Miscellaneous	2,040
Archer County—	
American Ref. Co.	340
Griswold Oil Co.	420
Gulf Production Co.	350
Humble Oil & Ref. Co.	95
The Texas Co.	805
Texhoma Oil & Ref. Co.	2,310
Miscellaneous	14,850
Petrolia—	
Gulf Production Co.	95
Magnolia Petroleum Co.	55
The Texas Co.	90
Miscellaneous	175
Total	21,700

Stephens County

Empire Gas & Fuel Co.	125
Gulf Production Co.	1,550
Humble Oil & Ref. Co.	1,335
Magnolia Pet. Co.	935
Mid-Kansas Oil & Gas Co.	1,065
Prairie Oil & Gas Co.	1,150
Sinclair Oil Co.	210
The Sun Co.	1,020
The Texas Co.	2,000
T. & P. Coal & Oil Co.	1,260
Miscellaneous	10,175
Total	22,815

Eastland County

Gulf Production Co.	615
Humble Oil & Ref. Co.	160
Magnolia Petroleum Co.	540
Panhandle Ref. Co.	500
Prairie Oil & Gas Co.	900
Sinclair Oil Co.	615
The Texas Co.	210
T. & P. Coal & Oil Co.	1,000
Miscellaneous	2,560
Total	7,300

Other Fields

Strawn—	
T. & P. Coal & Oil Co.	245
Miscellaneous	780
Moran—	
Empire Gas & Fuel Co.	175
Humble Oil & Ref. Co.	635
The Texas Co.	135
Texhoma Oil & Ref. Co.	230
Miscellaneous	2,466
Coleman County—	
Miscellaneous	170
Brown County—	
Miscellaneous	360
Comanche-Eastland—	
Humble Oil & Ref. Co.	425
Magnolia Petroleum Co.	1,170
Prairie Oil & Gas Co.	230
Sinclair Oil & Gas Co.	75
The Texas Co.	330
T. & P. Coal & Oil Co.	620
Miscellaneous	4,635
Young County—	
Gulf Production Co.	150
North American Ref. Co.	120
Sinclair Oil & Gas Co.	515
Oklahoma Pet. & Gas Co.	85
The Sun Co.	25
Panhandle Ref. Co.	370
The Texas Co.	140
Miscellaneous	2,900
Mitchell County	850
Reagan County	170
Jack County	30
Total	18,975
Total all fields	131,100
Total last week	133,895
Loss	2,795

MEXICO FIELDS

(Continued from Page 52)

cured back in 1921, at sub-sea level of 1,862 feet, getting 500 bbls.

In the Marland Field, Cia. Pet. Franco Espanola, No. 13 Limon, is abandoned at 2,555 feet, a dry hole.

Cacalilao-Panuco

With the completion of the several new wells in the Lot 1 of the Cacalilao district the rush for that place is becoming keener. This, too, is in view of the fact that there is a steadying in the well head market value of Panuco crude, due in part to general market conditions in the United States and gradual slumping of production in some important fields there; and, again, to the fact that the older sectors of Panuco as well as the famous Lot 4 in the Cacalilao sector are also showing a decline, as before reported. Well head values at Cacalilao within the past six weeks have slowly steadied from 23 cents the barrel to as much as a reported 31 cents a barrel. Wherefore, the rush for drilling sites and rustling around for tool and grub stakes by many of the "boys," who have found it a long, lean year.

New Pipe Lines

From this Lot 1 in the sector above discussed there is or will soon be ample pipe line facilities. Cacalilao Pipe Line Co.'s 8-inch line, which runs from fraction 4-B to El Barco, as previously reported, has been in active operation since October. The company is now preparing to lay a 12-inch line. From El Barco, it will be recalled, oil is barged to Tampico some 20 miles away. The river from that point to Tampico is, however, wide and deep with easy sweeping bends. This allows big tows and full loading. The Mexican Gulf Oil Co., which has been quite lucky recently in fraction 4-C of Lot 1, is now rushing the laying of a 10-inch line to its ocean loading terminals at Tampico. These lines should prove ample in handling Lot 1 production.

Routine Operations

Routine operations in the Cacalilao of the Panuco Pool are best described as follows: La Corona Petroleum Co.'s No. 45, Lot 4 is drilling in limestone at 1,510 feet; its No. 49, same, is driling in shale at 390 feet; and in Lot 1, its No. 47 has spudded; its No. 33 has cemented 8-inch at 1,200 feet, in the San Felipe; its No. 43 is drilling in limestone at 1,915 feet, and its No. 48 is a derrick. International Petroleum Co.'s No. 47, Lot 5, is drilling in gray shale at 1,070 feet; its No. 24, same, has shut down for orders in a white limestone at 2,508 feet; in Lot 3 its No. 30 is drilling in limestone with a showing of oil at 1,790 feet; its No. 49, same, is drilling in gray shale at 500 feet; and in Iot 4 its operations are as follows: No. 44 is drilling in gray limestone at 1,700 feet; its No. 46 has cemented 8-inch at 1,230 feet in a hard shale; its No. 50 is drilling in gray shale at 260 feet, and it is moving in for two other tests, Nos. 51 and 52. Mexican Gulf Oil Co.'s No. 36, Lot 1, (4-C), has cemented 8-inch at 1,256 feet in the San Felipe; its No. 37 is drilling in limestone with a showing of 200 bbls. from an upper stratum at 1,590 feet; its No. 39 is drilling in shale at 350 feet; its No. 42 has cemented 8-inch at 1,241 feet in the San Felipe and this is also of No. 43, in the same formation at 1,250 feet; its No. 44 is drilling in gray limestone at 1,078 feet. Mexican Sinclair Petroleum Corp.'s No. 22, Lot 3, is drilling in limestone at 1,900 feet; its No. 19 is rigged; its No. 23 is drilling in shale at 700 feet; its No. 30 has cemented 10-inch at 1,169 feet, and its No. 32 has done the same at 1,190 feet. In Lot 2, Mexican Sinclair's No. 36 is drilling in limestone at 2,160 feet. Over in Lot 1, fraction 4-B, a parcel lying just south of the productive Rich Mex wells, its No. 3 there is drilling in shale at 1,040 feet; its No. 7 has cemented 10-inch at 1,300 feet in the San Felipe; its No. 8 has done the same at 1,241 feet, same formation; its No. 9 is drilling in shale at 350 feet; its No. 10 is a derrick; its No. 11 is drilling in shale at 304 feet; its No. 12 is a derrick. Rich Mex Oil Co.'s operations in Lot 1, fraction 4-B are best described as follows: No. 13, Lot 1, is straightening crooked hole at 1,880 feet, in a lime; its No. 16 has cemented 8-inch at 1,127 feet, San Felipe; its No. 20 is drilling at 1,837 feet in a limestone with the hole full; its No. 19 is drilling in the San Felipe at 1,620 feet; its No. 32 is drilling in the same formation at 1,232 feet, and its No. 34 is drilling in shale at 425 feet. Venable and others' No. 1 over in fraction 2-B, Lot 1, is fishing at 2,222 feet in limestone with the hole full; its No. 4, same, is drilling in gray limestone at 1,700 feet, and No. 5 is drilling in white limestone at 1,975 feet, showing by heads. Transcontinental Petroleum Co.'s operations in Lot 4 follow: No. 32, drilled 1,290 feet, in the San Felipe, is mudding up between 12½ and 10-inch; Nos. 35 and 38 are rigging; No. 41 is running 10-inch at 1,300 feet, San Felipe; No. 53 is drilling in shale at 340 feet; No. 55 has cemented 10-inch at 1,280 feet in the San Felipe; No. 56 is drilling in limestone at 2,050 feet; No. 58 is rigging. Transcontinental also looks now toward Lot 1, and as a result No. 51 there has cemented 10-inch in the San Felipe at 1,220 feet, while Nos. 52 and 53 are moving in. In Lot 2 its No. 14 is running 12½-inch at 600 feet in shale.

Panuco Old Sectors

In the older Panuco routine operations are as follows: La Corona Petroleum Co.'s No. 79 Delicias is drilling in shale at 675 feet, and it is rigging for two more tests in the Salvasuchi sector. East Coast Oil Co.'s No. 31 Ingenio has cemented 8-inch at 1,275 feet in a shell, and its No. 14 Los Potreillos is drilling in a limestone, with a showing of oil, at 1,875 feet. International Petroleum Co.'s No. 16 Tanchicuin is drilling in blue shale at 1,035 feet, and its No. 18 there has cemented 8-inch in a gray shale at 1,490 feet. Mexican Atlas Petroleum Corp.'s No. 5 Juarez is fishing for a bit at 1,355 feet in limestone. New England Fuel Oil Co.'s No. 8 Cruz is drilling in limestone at about 1,655 feet. Transcontinental Petroleum Co.'s No. 14 Barbarena has cemented 8-inch at 1,150 feet in the lime. Talvez Oil Co.'s No. 6 West Maguabes is over 2,200 feet, in limestone, with a small showing.

The South Fields

In the South Fields, Huasteca Petroleum Co., (Mexican Petroleum), No. 29-A Cerro Azul is drilling in brown shale at 3,000 feet; its No. 35, same, is drilling in a similar formation at 1,043 feet; its No. 36, same, is drilling in blue shale at 720 feet, while No. 38 is skidding over. In Tierra Blanca, its No. 21 is drilling in gray limestone at 2,084 feet; and it is moving in on two new locations there, Nos. 23 and 25, the first of which is rigging now. Mexican Eagle Oil Co. No. 8 Palma Sola, is drilling in a green and brown shale at 1,284 feet; its No. 24 Los Naranjos, Lot 132 Amatlan, is drilling in brown limestone at 2,889 feet; its No. 29, same, lot 139 Chinampa, is drilling in a similar formation at 1,838 feet; its No. 30, same, lot 120 Amatlan, has cemented 10-inch at 1,796 feet in shale. Agwi Companies (Atlantic Gulf Oil Corp.), is preparing to drill another test in the Laguna de Tamiahua, which will be No. 2, and bearing say southeast from No. 1, which was a failure. It continues rigging for No. 17-A, Lot 157 Chinapma. La Corona Petroleum Co.'s No. 1, Lot 30, Comales, is drilling in gray shale at 2,200 feet; its No. 1 San Isidoro is drilling in shale at 900 feet, while its No. 2 Los Cues is drilling at 2,560 feet in shale. Cortez Oil Corp.'s No. 3 Aguada is sidetracking lost pipe at 2,800 feet; its No. 5, Lot 199 Amatlan is drilling in the San Felipe at 2,175 feet; its No. 3, Lot 189, same, is drilling in shale at 1,715 feet; its No. 5, Lot 148, same, has cemented 10-inch in hard shale at 1,236 feet. International Petroleum Co.'s No. 41 Toteco is drilling

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in gumbo at 2,727 feet, and its No. 42, same, is drilling in limestone at 2,488 feet. Island Oil & Transport Corp.'s No. 6, Lot 177 Amatlan, is drilling in the San Felipe at 2,150 feet, and its No. 3, Lot 96 Chinampa, has cemented 10-inch at 800 feet in a hard shale. Penn Mex Fuel Co.'s No. 2 Palo Blanco, an interesting test southwest of Agua Nacida has encountered considerable gas at 2,580 feet, in a gray shale with some shell, and has bridged as a result.

The Miscellany

In the Ebano Pool, Mexican Petroleum Co.'s No. 17 Chijol is drilling at 1,500 feet in limestone, and its No. 19, same, is in a similar formation at 2,100 feet. In its La Dicha, No. 29 is drilling in lime at 2,005 feet; No. 31 is in a similar formation at 1,522 feet, while No. 33 is drilling in shale at 805 feet.

At Los Esteros, American International Fuel Co.'s No. 11 Los Esteros is drilling in white limestone at 2,525 feet.

In the Caracol, Allison Smith No. 2, Lot 50, is drilling at 2,480 feet, presumably continuing in the San Felipe, with considerable gas in evidence. The status of the other tests in this district remaining generally unchanged.

Up in Nuevo Leon State, where Agwi Companies have made some little hole in No. 1 Popote, which now promises to make time with an improved diamond drill under Sheldon & Burden, contractors, Benny Buchanan is going into this territory to drill a test on Norman Mexican Petroleum Co. property also a location having been made say some 5 miles southeast of Agwi's Popote No. 1. A standard rig is being shipped to Linares, the nearest railway station of mark now.

EASTERN FIELDS

(Continued from Page 52)

ing on the T. V. Smith farm. In Geary district, Roane County, the United Fuel Gas Co. is fishing in the Big Injun sand on the W. H. Short farm. In Harper district, the Empire Petroleum Co. is fishing on the W. H. Hunt farm, with three strings of tools in the hole. In Washington district, Calhoun County, Norris & Cain are rigging up on the Nancy Jarvis farm. In the same district, the Euclid Oil & Gas Co. has started to drill on the Howard Lamb farm. In Center district, Gilmer County, the Carnegie Natural Gas Co. is drilling on the D. L. Oberly farm. In the same district, McCall & Co. are rigging up on the George W. Sager farm.

Southeastern Ohio

The deep sand territory along the dividing line between Hocking and Perry Counties, in Ward and Coal Townships, is no longer furnishing large wells. During the early part of the year it supplied some very good wells. In Section 29, Ward Township, Hocking County, the Sunday Creek Coal Co. completed No. 114, and has a 20-bbl. producer. In New Castle Township, Coshocton County, the Preston Oil Co.'s test on the Martin Miser farm is a 10-bbl. pumper in the Big Lime formation. In Bowling Green Township, Licking County, the Midland Oil Co.'s test on the Murray Bowser farm is holding up at 50 bbls. a day. In Section 7, Rush Creek Township, Fairfield County, the Ohio Fuel Supply Co.'s test on the Alta Barr farm is through the Clinton sand and dry. In Section 8, Clay Township, Knox County, the Rocky River Oil Co.'s test on the S. B. Evans farm, is a small gasser in the Berea grit. In Section 13, Monroe Township, Perry County, the Monper Oil & Gas Co. has completed and shot in the Berea grit No. 10 on the E. Newberry farm. It is good for 6 bbls. a day.

Noble County Completions

In Section 33, Noble Township, Noble County, I. C. Shalkop & Co. have drilled a test on the R. W. Dye farm through the stray sand and dry. In Section 8, Sharon Township, N. A. Hendershot & Co. have drilled a test on the Clifford Marquis farm through the 700-foot sand and good for 7 bbls. a day, naturally. In Enoch Township, W. D. Mosely & Co. have drilled their old No. 1 on the Wayne Moreland from the Macksburg 500-foot sand to the 700-foot sand and showing for a 5-bbl. pumper. In Lot 16, Madison Township, Licking County, Spindler & Donaldson are drilling on the C. A. Bounds farm. In the same section and township, Ralph Brothers are drilling No. 1 on the Boy Scouts' farm. In Section 8, Perry Township, Monroe County, Calebaugh, Lodolph & Co.'s No. 3 on the George D. Briggs farm, is a light pumper in the Keener sand. In Section 8, Green Township, Paulus & Co. have a good gasser in the same formation at a test on the John Claugue farm. In Section 27, Ward Township, Hocking County, the Pure Oil Co.'s second test on the W. G. Stout farm is a gasser in the Berea grit. In Section 34, O. Melichner has a good gasser in the same formation at a test on the R. Leiman farm.

Town Lot Gasser

Located inside of the corporate limits of the village of Rushville, in Section 28, Richland Township, Fairfield County, the Rushville Oil & Gas Co. has drilled a test on the Robert Gyde lot into the Clinton sand. It is a gasser good for 500,000 feet. The location is 1,500 feet west of the same company's test on the Stephen Young farm. In the northwest quarter of Section 26, Washington Township, Hocking County, the Pierpont Oil & Gas Co. has a fair gasser in the Berea grit at a second test on the O. F. Pierpont farm. In Section 24, in the same township, the Gordon Oil Co. has completed and shot in the Berea grit, No. 5 on the J. S. Feathers farm. It is a light pumper. In the Macksburgh district, Section 4, Jefferson Township, Noble County, L. A. Patton has drilled his test on the Charles Shilling farm, through the Macksburg 500-foot sand. It is a very light pumper. In Monroe Township, Holmes County, the East Ohio Gas Co. has a gasser in the Clinton sand good for 5,000,000 feet a day. On a part of the same farm, the Medina Oil & Gas Co. has completed a test and good for 4,000,000 feet.

Deep and Shallow Sand Dusters

Located in the southwest quarter of Section 29, Starr Township, Hocking County, the Preston Oil Co. has drilled through and shot in the Clinton sand, its No. 5 on the T. B. Trobridge farm. It is a duster. In Section 15, Sunbury Township, Monroe County, John Gallagher & Co.'s test on the Catherine Burkhart farm, is dry in the Big Injun sand. In Green Township, Hocking County, Ralph Brothers have a Berea grit duster at a test on the Howard Chutes farm. In Richland Township, Holmes County, the Reno Oil Co.'s test on the D. F. Pipes farm is a light pumper. In New Castle Township, Coshocton County, the Preston Oil Co. has a 10-bbl. pumper at a test on the Martin Miser farm. In Harrison Township, Knox County, F. Marion Snyder has a 3-bbl. pumper in the Berea grit at No. 15 on the George Miller farm. In Section 18, Halbrain & Weed got a very light pumper on the Elliott Scooles farm. In Rush Creek Township, Fairfield County, the Hall Oil & Gas Co. is drilling in the Clinton sand at a test on the C. C. Brandt farm.

COMPRESSION AND OIL ABSORPTION PLANTS

(Continued from Page 77)

mated increase of over 1,700 gallons a day as experience has shown that other increases in gallonage can be looked for as the result of reduced evaporation, loading and outage losses. The better quality of this product will be a further advantage. The greatest benefit, however, will come from the fact that the increased revenues from the sale of more and better gasoline will turn this particular plant from a losing proposition into a profit maker.

Operating Costs Are Less

In 1922 a plant in the Cushing Okla. field was converted from compression to absorption. The increase in production amounted to a little more than 20 per cent, but due to the better quality

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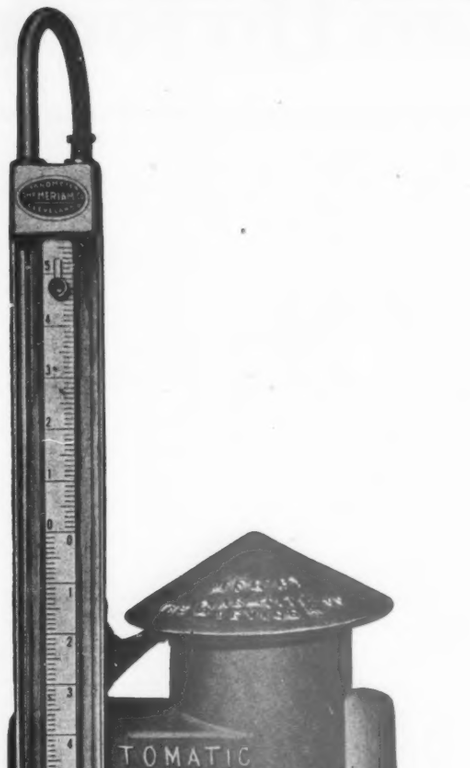

Oil Producers

Are you realizing full value on your daily production?

By using Gas-Tite Devices, your tanks will be equipped to conserve all values. The gas will be retained with the oil under a safe pressure, thereby eliminating evaporation and preserving the original gravity and volume.

Gas-Tite Devices operate at all times, and under safe loads the pressure valve releases 2¼ ounces and the vacuum valve releases at ¼-ounce vacuum.

THE GAS-TITE DEVICE CO.

PAWHUSKA, OKLAHOMA

the product the gross earnings were increased that year by nearly 25 per cent. The increase in net earnings, however, probably amounted to several times this figures.

When the first gasoline plants were installed in the Burbank Pool of Oklahoma one of the large oil producing companies moved in some surplus machinery from several of its compression plants. They intended to install an "expander compressor" to increase the efficiency of this plant, but found that the gas was holding up better than they expected and that there was a great deal more available. They, therefore, decided to convert their plant to the oil absorption system. The converted plant is now handling a little more than twice as much gas as before conversion, and producing over two and one-half times as much gasoline. The cost of conversion to absorption was less than one-third of what the construction cost would have been if the compression plant had been doubled in capacity and expander compressors installed. The quality of the gasoline is much better and the quantity greater than could have been made and delivered by the enlarged compressor-expander plant.

It is very evident that the cost of repairs and maintenance will be materially reduced where the oil absorption system is used, because the same volume of gas can be handled with half the compressors and engines needed in a compression plant, and because high pressures are eliminated. As a rule absorption plants require less operating labor. These reductions in operation and maintenance costs are reflected in lower manufacturing costs per gallon of gasoline — and consequently in greater profits.

Product More Marketable

The fact that the quality of the average compression-made natural gasoline is inferior to absorption process gasoline makes it very difficult to dispose of compression gasoline during periods of depression such as existed in 1921, and the greater part of 1923. Experience has shown that the average converted plant produces and delivers about 20 per cent more gasoline than it did before conversion. Therefore, if we multiply our "better quality-better price" factor by our "larger recovery-larger sales" factor we get a new "gross sales increase" factor that will bring still greater profits within the grasp of the owner of a compression plant—if he will convert it to absorption. These potential profits have been and now are slipping through his fingers.

TABLE NO. 2

Table of comparative prices, in cents per gallon, in tank cars f.o.b. Mid-Continent gasoline plants.

	1921	1922	1923	Aver. 21-22-23
Absorption	14.50	15.98	9.24	13.24
Compression	11.88	15.40	8.47	11.91
Prem. paid for abs.	2.62	0.58	0.77	1.33
Per cent premium	22	3.8	9.1	11.6
Assumed increase in production after conversion	20%	20%	20%	20%
Per cent increase in gross returns	46%	25%	29%	34%

Comparative Values of Products

It would be natural to expect that the superiority of the oil absorption process over the compression system would be reflected in the comparative prices at which the products of these two processes are sold. Figure 3 is a graphic history of these prices for 1921-22-23 and shows that the average premium paid for absorption made natural gasoline amounted to 2.62 cents in 1921, while in 1922 it was 0.58 of a cent, and in 1923 it was 0.77 of a cent per gallon. Applied concretely, this "price differential" means that a man who converted a 2,000 gallon compression plant into absorption would, in 1921, have increased his gross earnings about $19,000—the increase in 1922 would have been about $4,000, and in 1923 almost $6,000. These additional earnings are due entirely to a better price for a better quality gasoline—and do not take into consideration the very substantial increase in gallonage that the converted plant would have produced.

Boiled down to cold, hard facts, the situation of the plant owner is about as follows: Based on the average Oklahoma compression plant (2,000 gallons a day) and the average price of compression gasoline during the last three years (11.91 cents per gallon), his average income during the last three years would have been 2,000 gallons multiplied by 365 days multiplied by 11.91 cents, or about $85,000 per year.

If his plant had been converted to absorption it would have produced about 2,400 gallons a day for which he would have received 13.24 cents per gallon (the average price of absorption gasoline during the last three years). This would have made his yearly sales about $115,000, or about $30,000 more than from the compression plant. On this basis his increased earnings for the three years would have amounted to about $90,000. To this $90,000 should be added the salvage from surplus equipment, and from the total should be deducted the cost of the conversion.

Figured on a conservative basis, the increase in the net earnings, due entirely to the change from compression to absorption would have brought back to him, several times over, the money that he paid out — and this is the author's answer to the compression plant owner's question, "What will I get back for what I pay out?"

GULF COAST

(Continued from Page 44)

in the Callahan district, the wells to be completed 10 days apart, or approximately 36 wells per month for a period of almost 10 years. The Grubstake Co. controls some 28,000 acres on the border of McMullen and Live Oak Counties. Hill and associates will drill on 3,000 acres known as the Lark lease, which is north of Callahan and south of the Frio River. The first well will start within six months and several will be drilled at the same time, thus shortening the allotted time of the contract.

The Southern Gas Co., which supplies San Antonio with natural gas from the McMullen-Live Oak gas district is drilling two gas wells there and three at Gas Ridge in Bexar County, where there are now 22 gas wells with light pressure. The company has completed four gas wells at Gas Ridge during the past 60 days. The Houston Oil Co. has muddied off the gas in its No. 3 Cartwright in Live Oak County and will deepen the hole. It registered a pressure of 1,100 pounds and the volume was estimated at from 40,000,000 to 50,000,000 feet. The gas sand was found around 1,66 feet.

Reagan County

Out in Reagan County in west Texas, where the Texon Oil and Land Development Co. got a well some time ago, the Big Lake Oil Co., which took over 16 sections from the Texon Co., is still fishing in No. 2 San Rita at 2,750 feet. Eight and one-quarter inch casing has been set in No. 3 San Rita at 2,620 feet and the hole is deepening below 2,62 feet. A derrick is up for No. 4, one-half mile south of the discovery well. No. 5 is a derrick 1½ miles northeast from the original well and a location has been made for No. 6 one-half mile to the southwest of the discovery well with a location for No 7 one-half mile southwest. The Mid-Kansas Oil & Gas Co. has three locations on leases taken over from the Big Lake Oil Co. on a 50-50 basis. No. 1 is 10 miles north of the discovery well and No. 2 10 miles southwest, while No. 3 is 20 miles southwest in Crockett County. The Orient Railroad will install a motor car service between San Angelo and Fort Stockton for the benefit of those interested in the developments.

Down on the border, the Havelein Oil Co.'s No. 1 Weathersbee, Val Verde County, set 5 3/16-inch casing at 3,30 feet. Morris and others' are drilling No. 1 on lands of the Valverde Irrigation Co. 4½ miles southeast of Del Rio and Hodges and Wright's No. 1 is below 80 feet. The Independent Oil Operators is drilling No. 1 Whitehead, 7 miles northeast of Del Rio.

The Long Green Oil Co. is planning to

resume work on the test 12 miles north of Huntsville, Walker County, shut down at 2,600 feet. The Texas Co. is drilling No. 1 Prembsky, southwest of Brenham, at 1,500 feet.

Luling and Laredo

The United North and South Oil Co.'s No. 1 Lopez, southwest of the Luling Field and across the San Marcos River in Guadalupe County, is reported showing oil and gas in a sand around 2,100 feet. The lime in the Luling Field is found around 2,150 feet. The Lopez test is the first favorable indication out of six or more tests drilled in Guadalupe County. It is about 3 miles from production. M. O. Rayor abandoned No. 1 Rayor at 3,500 feet and will try for the 600 feet sand in the field. Mahlstedt-Mook Oil Co. is trying to shut off the water in No. 1 Fields. The Witherspoon Oil Co. abandoned its test northeast of production.

An average of 24 cars of crude per day is being shipped from Oilfield, a station on the San Antonio and Aransas Pass Railroad, to the San Antonio refineries. Pipe lines connect the field with the loading racks at Oilfield station. The Magnolia Petroleum Co. has a skimming plant there and 18 tanks of 55,000 bbls. capacity. It is said 10 more tanks will be erected.

Failure to extend the Luling Field southwest or find another structure in Guadalupe County, has directed attention to the northeast in Caldwell County and over into Bastrop County, where several tests are now drilling. The Purcell and Cole tests are northeast and Keen and others' No. 1 Davis is drilling in Caldwell County. The Cardinal Oil Co. has spudded in No. 1 Ott in the eastern part of Caldwell County. In Bastrop County, McBent and associates' No. 1 Valek is drilling near the Fayette County line. The Shallow Stuff Oil Co.'s No. 1 Benek is drilling below 610 feet. M. A. Currie, who has wildcatted extensively in North Louisiana and south Texas, is starting on 1,700 acres northeast of the Benek lease.

In the Laredo districts, the Magnolia Petroleum Co. is starting No. 18 in the Schott section. The Elm Oil & Gas Co. is trying to plug off water in No. 1 Ochoa. The Neuva Oil Co.'s No. 1 Garcia is a 100-bbl. well at 1,700 feet. The Caroline-Texas No. 5 Barnsley ranch is estimated as a 40,000,000 gasser at 3,000 feet. The other gas wells on that ranch got the gas sand around 2,000 feet. Just as soon as conditions improve many of the present small pumpers will be drilled to the light gravity sand at 1,900-2,000 feet and some will go as deep as 2,500-3,000 feet in the hope of finding a productive stratum. The Chico Pool Oil Co. is preparing to deepen No. 1 to the light gravity sand. References have been made to this newly found light gravity oil in previous reviews. The original production in the Laredo districts is found from 1,600 to 1,700 feet. Two months ago another sand was found between 1,900-2,000 feet in which the oil shows as high as 45 gravity, but the wells are smaller than those producing from the higher level. The light gravity crude commands a little premium over the 50-cent quotation established for the heavier grades. The quotation for the Luling crude is 50 cents at present.

Browne and others' No. 1 Bowman in Sabine Parish, Louisiana, was abandoned at 3,125 feet. The Johnson Bayou Prospecting Co. (C. N. Scott and associates) are drilling the first of several tests for dome formation in the Johnson Bayou section of Cameron Parish.

The Somerset Oil Co. has started No. 20 Kurz in the Somerset Field and the Witherspon Oil Co. No. 1 Bridges.

Milam County Shallow Sands

Thirteen wells have been completed in the Milam County shallow sand section since June 4 last, of which 9 were producers, two gassers and two abandoned. The daily average output during November was 500 bbls., according to the Owens Refining Co., which handles most of the product. It is estimated that the land owners have received $425,000 in bonuses and royalties since the first of the year.

The J. E. Lee No. 1, one-half mile north of the Phillips land, is a gasser. The Freddie Palmer Oil Co. set casing at 900 feet in No. 2 Sterlsky. The Ryan Consolidated Petroleum Co. renewed the rentals on some 575 acres in the district in lieu of drilling. W. C. Jennings' No. 1 Branch is around 635 feet.

W. KENTUCKY-TENN.

(Continued from Page 54)

yards of the bed of the creek were torn up and many large rocks blown out on the bank. It is now believed this was a natural gas explosion, since so much gas has been found in that section in developing the oil field, but at that time gas was probably unknown, and for a time the residents lived in mortal dread, fearing a similar occurrence.

At the present writing only one well is making hole in the Monroe County Field, the others, eight in number, have been shut down for the holidays.

Tennessee News

Late reports state that a wildcat test is being started in Cheatham County, Tennessee, on a location made by Doctor Jillson, State Geologist of Kentucky. The test is located about 15 miles northwest of Nashville.

A wire received from Jackson, Tenn., states that a well has been drilled in near that place. It is presumably on the Murchison farm, 4½ miles south of Jackson, in Madison County. This test was started by Tivey and associates, but was taken over by local capitalists.

It is also reported that a well has been completed in Dickson County, near the town of Dickson, showing for a commercial producer.

In the Dutch Creek district of Sumner County, Tennessee, near the Allen County line, six wells have been recently abandoned. It is stated that each of the tests had good showing of oil. In Grundy County, the test near Mount Eagle was abandoned at 730 feet.

N. LOUISIANA-ARKANSAS

(Continued from Page 46)

Section 28-15-15 and is drilling at 2,240 feet in No. 1 Reynolds, Section 32-15-16.

The Smith Refining Co. set 10-inch casing at 100 feet in No. 3 Patton, Section 31-15-16 and has drilled to 1,200 feet in No. 5. Snowden & McSweeney have derrick up for No. 3 Taylor, Section 29-15-16. Solmson and others set 10-inch casing and drilled to 1,000 feet in No. 2 Fee, Section 30-15-16. The Standard Oil Co. is down 1,940 feet in No. 3 Solmson, Section 29-15-16. The Sure Oil Co. set 10-inch casing at 70 feet in No. 2 Fee and has rig up for No. 3, Section 30-15-16.

The Texas Co. is drilling at 1,000 feet in No. B-1 Solmson, Section 32-15-16. The V. K. F. Drilling Co. is waiting on standard rig at 2,300 feet in No. 2 Patton, and drilling at 1,975 feet in No. 3, Section 32-15-16. Whittaker and others have rig up for No. 2 Berg, Section 29-15-16. Wingfield and others are down 2,100 feet in No. 1 Fincher, Section 32-15-16 and drilling at 1,400 feet in No. 2 Patton, Section 32-15-16.

Stephens Field

Ouachita County—The Atlantic Oil Producing Co. has shut down No. 4 John Webfer at 100 feet on account of high water, Section 30-15-19.

Columbia County

The Atlantic Oil Producing Co. is waiting on standard rig at 2,120 feet for No. 4 Milner, Section 24-15-20. Hickman and others set 10-inch casing and drilled to 1,510 feet in No. 2 Smart, Section 13-15-20. Johnson and others have derrick up for No. 1 Salles, Section 18-17-22.

The Magnolia Petroleum Co. is down 2,000 feet in No. 4 Hammond, Section 25-15-20. Turle yand Tate set 6-inch casing at 2,090 feet in No. 4 Milner, Section 24-15-20.

A few words of appreciation are always apropos, but more so at this joyful Christmas season. The world has been considerate of us; the big oil industry has given us of their fair-mindedness, their square dealing and their wonderful friendship—all of which we hope our efforts have deserved, and for which we pledge our utmost co-operation in the future. Through their good feeling towards our products—the Reed Roller Bit and Reamer—our gross business in past few months of that line has passed the Half Million Dollar Mark and adoption of the slush system of lubrication has received universal adoption in all the principal oil fields of the world. So it is but natural, we at this period of holiday felicitations take the opportunity to wish all our good customers and the oil trade in general the happiest XMAS of their life and a New Year brimming over with prosperity.

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Running out of Louann, Ark., and extending to Ardis, La., a distance of 100 miles, is a string of Republic 10″ line pipe. This line is now being completed for The Texas Co. and will convey Texaco crude to the refinery base. The view shown above was made while the line was being laid in the open country.

Republic pipe for the oil country supplies a demand required by big producers in all of the important fields in this and foreign countries. Republic is stamped in every length. Republic stands back of every foot.

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			Birmingham

Two completions were recorded in Nevada County last week. Ames and others' No. 4 Waters, Section 10-14-21, pumping 100 bbls. at 11,75 feet and the Dixie Oil Co.'s No. 2 P. R. Womack, Section 10-14-21, pumping 10 bbls. of oil, lots of fresh water at 2,000 feet.

Smitherman and McDonald are waiting on standard rig for No. 1 Wallace Section 11-14-21 at 1,210 feet. The Transcontinental Oil Co. is drilling at 2,000 feet in No. 1 Blakely, Section 14-13-20.

Bellevue Bossier

Olmstead and others completed No. A-11 Strange, Section 23-19-11, pumping 35 bbls. at 279 feet and No. A-12, pumping 10 bbls. at 315 feet.

R. O. Roy is rigging up No. 25 Scanland, and set 6-inch casing at 350 feet in No. 26, Section 15-19-11. The Standard Oil Co. is down 345 feet in No. 4 Bliss and Weatherbee, Section 10-19-11.

Caddo Parish

The Muslow Oil Co. put No. 2 Brown fee on the beam with 85 bbls. production at 2,135 feet, Section 32-21-15.

Brewer and Sewall are down 2,445 feet in No. 1 Sharp, Section 15-18-16, 10 miles west and a little north of Shreveport. The Crude Oil Co. is down 1,510 feet in No. 1 Alexander and Ledbetter, Section 27-16-14, 10 miles south of Shreveport.

The Dixie Oil Co. is rigging up No. 57 Robertshaw, Section 14-21-15 in the Pine Island district. In the same territory the Fortuna Oil Co. has location made for No. 12 Herndon, Section 22-21-15. The Muslow Oil Co. has set 10-inch casing and drilled to 400 feet in No. 3 Brown fee, Section 31-21-15.

The Humble Oil & Refining Co. is down 2,810 feet in No. 1 Youree Randolph, Section 24-20-15, 5 miles east of Mooringsport.

Claiborne Parish

Cox and associates moved rig and abandoned No. 1 Craighead at 910 feet, Section 28-20-6, wildcat territory. The Ohio Oil Co. made location for No. 1 Crump, Section 13-23-8 and for No. 1 Whaley, Section 9-23-8.

De Soto Parish

Ulray and associates set 10-inch casing and drilled to 495 feet in No. 1 Frost Johnson, Section 3-11-15, 7 miles east of Logansport.

Louisiana Wildcats

Lincoln Parish—The Four Creek Oil Co. shut down No. 1 Colvin for fuel at 1,510 feet, Section 27-20-3w, 15 miles southwest of Farmerville.

Morehouse Parish—The Carson Carbon Co. is drilling at 520 feet in No. 1 Irvin, Section 28-20-5e. Cronin and McKenzie set 6-inch casing at 2,145 feet in No. 2 Perry, Section 13-20-4. Morris trustee is down 960 feet in No. 1 Rogers, Section 15-20-5. The Richland Oil & Gas Co. has derrick up for No. 1 Chess Wymond, Section 32-19-6e.

Ouachita County—The Chester Carbon Co. completed No. 1 Flournoy, Section 22-19-5, making 500,000 feet of gas at 2,320 feet. The Consumers Gas Co. completed No. 2 Richie, Section 8-19-5, making 8,000,000 feet of gas at 2,215 feet. The Cosmos Carbon Co. completed No. 2 Hancock, Section 20-19-5, making 5,500,000 feet of gas at 2,265 feet.

The Atlas Oil Co. is drilling at 3,270 feet in No. 2 West Virginia Timber Co., Section 3-18-5e. The Fortuna Oil Co. is drilling at 2,150 feet in No. 1 Cole, Section 35-20-4. Hosterman and others are down 2,210 feet in No. 1 Collins, Section 31-19-5. The Magnolia Carbon Co. is rigging up No. 2 Fee, Section 18-20-5. The Peerless Carbon Co. is down 2,205 feet in No. 2 Fee, Section 28-19-5. The Southern Carbon Co. set 12½-inch casing and drilled to 605 feet in No. 25 Fee and has location made for No. 26, Section 27-19-5. It is down 985 feet in No. 6 Fairbanks, Section 43-20-5.

The Texas Louisiana Production Co. is down 1,895 feet in No. 3 Fee, Section 4-19-5. The Texas Co. set 6-inch casing at 2,155 feet in No. 3 Gibbs and is drilling at 1,800 feet in No. 4, Section 20-19-5. The United Oil & Gas Production Co. is drilling at 1,610 feet in No. 1 Kerr, Section 12-19-4.

Sabine Parish—Davidson and Palmer are down 2,025 feet in No. 1 Green, Section 19-23-1e. The Empire Gas & Fuel Co. is drilling at 3,150 feet in No. 1 Hamilton, Section 30-19-1e, 11 miles south of Farmersville.

Lide and associates have derrick up for No. 1 Templeton, Section 18-23-1e. Tarver and others have derrick pattern on location for No. 1 Payne, Section 30-21-1w. The Union Power Co. is drilling 1,805 feet in No. A-5 Union Saw Mill, Section 29-21-4e and is down 2,080 feet in No. A-6, Section 32-21-4e, about 10 miles west of Bastrop; down 1,510 feet in No. A-7, Section 21-21-4e, about 20 miles east of Farmerville and drilling at 857 feet in No. A-8, same section, 10 miles northwest of the Monroe gas field. Woodard and Clark set 6-inch casing at 2,175 feet in No. 1 Clarke, Section 17,23,2e.

Webster Parish—O'Brien and others are drilling at 1,430 feet in No. 1 Doles, Section 26-21-9. The Ohio Oil Co. is drilling at 2,645 feet in No. 1 Martin, Section 34-23-10, 18 miles east of Plain Dealing. Palmer and Blunt are bailing fresh water at 600 feet in No. 1 Anders, Section 6-18-10. The Standard Oil Co. has rig up for No. 1 Woodward and Walker, Section 16-17-8. The Fortuna Oil Co. is moving in rig for No. 1 Pruitt, Section 17-21-9.

EAST CENTRAL TEXAS

(Continued from Page 50)

property owner. Oil at an average price of $1 a bbl. netted $3,750,000.

Six hundred derricks built, each requiring $750 worth of lumber, represents an expenditure of $450,000, and labor costs of erecting, about $500 per derrick or a total of $300,000.

Drilling costs have averaged $18,000 per well, turnkey job, where the drilling contractor has furnished his own rig, tools, materials, labor, casings, pipes, water, etc. This represents a cost of $12,800,000.

The erection of storage tanks for six tank farms represents a total of about 170 tanks of average capacity of 55,000 bbls., represents a cost of $3,500,000. The laying of pipe lines, which form a veritable network throughout the vast area, in 4, 6 and 8-inch dimensions covering several hundred miles, has cost on an average $10,000 a mile. This expenditure has been, according to estimates, not less than $2,000,000.

The construction of camp sites, teaming camps, storehouses, new railway facilities, loading racks and other things represent $1,000,000 in labor and materials.

All in all, expenditures in bills for materials and labor during the six months of the brunt of the drilling campaign $1 has been spent for each barrel of oil produced. This has been turned loose largely in local trade channels. Oil well supplies have been purchased in mammoth quantities. The average cost of a rotary drilling rig runs around $30,000.

Production Figures

On December 19, the production of the field was 85,053 bbls. from 506 wells. On December 12 it was 108,116 bbls. from 555 producing wells

The Humble Oil & Refining Co., the largest producer in the field, had 21,900 bbls. on last Wednesday as against 27,062 bbls. the Wednesday previous. The Tidal Buttram Oil Co.'s production dropped from 6,625 bbls. to 3,327 bbls. in the course of the week. The Gulf Production Co.'s output showed an increase from 8,174 bbls. on December 12 to 10,927 bbls. December 19. The Skelly Oil Co. dropped from 10,195 bbls. to 2,200 bbls. in the week. The E. L. Smith Oil Co. increased from 808 bbls. to 5,208

(Continued on Page 103)

Keep Your Tail Up

It's going to be a good New Year

Here's to you fellows with the courage and the guts that makes this country the oil dictator of the world. If every industry was as courageous as you oil men we wouldn't need so much class legislation.

Good luck to you.

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Workers Partners in Indiana Standard

Industrial Relations Plan Solving the Problems of Relations of Employers and Employed, Stockholders and Public

By C. O. Willson

Seated around banquet tables in a leading Chicago hotel recently were representatives of one of the largest companies not only of the oil industry but also of the entire industrial world. There was no honorary table at the banquet and intermingled among the several tables were company officials and directors, machinists, stillmen, carpenters, switchmen, boiler firemen, pumpers, treaters and representatives of other classes of company employes.

"A democratic organization" would probably be the first impression of the onlooker. A further consideration of the doings of that body of men at the banquet and at previous sessions would reveal that the democratic gathering was simply a means to an end and that its primary purpose was the serious consideration of problems which concerned employes, employer, the stockholders of the company and indirectly the public which buys its products.

Represent Largest Marketer

The men were representatives of The Standard Oil Co. of Indiana, a major producer and refiner of crude oil and the largest marketer of refined products in 10 States of the Middle West, an area which during the past year has consumed more than 2,000,000,000 gallons of gasoline. The occasion was the banquet which marked the final session of the Fifth Annual Conference of the Department of Industrial Relations of the company. Approximately 100 men were present, representing in addition to the Chicago headquarters, the refineries located at Whiting, Ind., Wood River, Ill., Sugar Creek, Mo., Casper, Greybull and Laramie, Wyo.

The proceedings of that conference attest the success of the industrial relations plan which was inaugurated five years before, largely at the instigation of Col. Robert W. Stewart, chairman of the board of directors of the company. The conference discussed the happenings of the previous year of special concern to the company and in addition outlined plans for the coming year.

Features of the Plan

In this article the main features of the plan as perfected by the Standard Oil Co. of Indiana will be given. It is of interest to the oil industry not only because it concerns one of its largest companies but also for the further reason that it incorporates many features which are capable of application to all organizations of the petroleum world, regardless of whether they are engaged in the producing, refining or marketing ends.

The oil business in the past has been singularly free from the labor troubles which have beset many other major industries. The rapid growth of the industry, the payment of relatively high wages and the constant shifting of producing and refining centers have been factors which were largely responsible for the favorable situation in the past. Students of labor conditions, both within and without the industry, have pointed out, however, that this situation will not continue indefinitely. These authorities state that as the industry becomes more stabilized it is inevitable that the manufacturing branch of the oil industry, at least, will be confronted with labor disputes unless precautions are taken to avoid them.

Employes' Participation

It is true that several smaller companies, as well as a few major organizations, have during the past few years inaugurated plans for greater cooperation between management and employes. But it can be said that the industry generally has never given serious consideration to perfecting workable plans which recognize the wisdom of permitting employes participation in company management as it concerns their own welfare. The Indiana company was a pioneer among the large corporations to institute a policy of granting employes through their elected representatives a voice in the settlement of all questions affecting their welfare as to wages, hours of labor and working conditions. The plan goes further than minor details or recreation and welfare. (The employes have a real say in determining conditions under which they work at the refineries.) In actual practice, as will be shown later, the several thousand employes have a very definite part in the legislative, executive and judicial functions in the administration of the company's refineries.

As to the success of the plan from the management's standpoint, it now has the unanimous approval of officials of the company. It has been gradually brought to its present state of perfection without lowering the standard of discipline and efficiency. In fact officials agree that it has had an important part in making possible the rapid expansion of the company's interests during the past few years.

Many employes of the company when the plan was first inaugurated were frankly skeptical as to its success. This was apparently largely due to lack of understanding of its provisions. The fact that practically all the recommendations made by the joint general committees located at each plant have been accepted by the company officials has served to minimize this skepticism and the general interest taken in the voting is indicative of the employes' attitude at the present time.

Commenting on the employes' viewpoint, J. W. Curry, who has been director of the department from its formation, said: "I have heard it said by employes who have had much experience in working for other companies and know the difficulties of securing an equitable adjustment of their problems that the quickest way to start a strike in the refinery where they worked would be to abolish the plan of representation."

Col. R. W. Stewart, chairman of the board of directors, expressed the opinion of company officials at the banquet previously mentioned when he said in part:

"Since the First Annual Conference, five years ago, what a distance we have traveled on the road to industrial accord. How great and diversified are the benefits that have accrued to us as employes, and how rapidly has our company with men and management working hand in hand, climbed the heights of industrial preeminence.

"I beg of you to glance backward a moment through these five years that have gone and note the many improvements in working conditions that have been effected in our refineries; recall the many cases of controversy that have been adjusted to the satisfaction of all; mark the fairness of wage adjustments that have been made; consider the significance of the employes' Stock Purchase Plan and the establishment of the fountain head from which all these benefits have sprung—the Industrial Relations Plant itself.

"Believe me when I tell you there is no policy which is closer to my heart, or in which I am more deeply interested than the Industrial Relations Plan. I feel it has been an unqualified success, and it is here to stay, and from it untold benefits will continue to accrue.

"Through this organization a better understanding has been established among ourselves. It provides an avenue whereby we are able to get together as employes and partners in the business and discuss all questions in controversy.

"The greatest thing needed in American industry today is a better understanding between employes and management. The day of intolerant and drastic methods by either the leaders of capital or labor is past. Each needs the other, and the policy of establishing good will, peace and understanding have been established between the management and employes of our company.

"For five years we have worked together in mutual esteem and trust. For the board of directors, I say to you that while the problems presented by the situation in the oil industry today are stupendous, we face them with a greater confidence because we feel that we have back of us the wholehearted support of every man and woman in the Standard Oil Co. of Indiana."

Benefits Demonstrated

Concrete evidence of the workings of this plan as benefiting all concerned are not lacking. From the employes' standpoint it has brought a reduction in hours for process men from a 7-day week to a 6-day week, made effective March 1, 1920. The joint general committees initiated two general wage increases. The first, which became effective March 1, 1920, increased wages $2,300,000 annually and the second, effective March 16 of this year, added $2,500,000 to the company's pay roll. At the instigation of the joint committees locker rooms have been improved and standardized and modern baths, washrooms and toilet facilities provided. Recreational work has been systemized and adequate equipment provided for all employes and in a large measure their families. Through the cooperation of employes the safety work so necessary in refinery operations has been improved.

There are many advantages having to do with the every day welfare of the employe which could be listed. But both employe and employer believe that the most important development of the plan is the mutual understanding which extends from the bottom to the top of the organization. The benefits accruing from this are not easy to enumerate and cannot always be measured in dollars and cents but where this harmony exists every one in an organization is aware of its presence.

How Conference Works

Perhaps the actual workings of the plan can best be appreciated by a study of the proceedings of the Fifth Annual Conference previously mentioned. One of the features of that conference were the papers dealing with matters of industrial importance presented by a representative from each of the five refineries.

The five subjects presented were: "Financing Homes for Employes," "Promotion of Sales of the Standard Oil Co. (Indiana) Products by All Its Employes," "Gaining the Good Will of the Public for the Standard Oil Co. through Its Employes and the Industrial Relations Plan," "Cooperation Between Employes and Management" and "Safety from an Educational Standpoint."

These subjects bear evidence that employes and the management of a company, if given the opportunity, will not confine their activities to those matters which directly concern their own welfare but will also take an active interest in all matters which have to do with company prosperity. The Whiting, Indiana, representative at the conference sought a change in the company's layoff ruling. It was contended by the employe that the ruling was not liberal enough as it provided that a temporary layoff due to curtailment of or cessation of normal refinery operations could not exceed 30 days. The continuous service record of the employe was not broken by a layoff under 90 days but all time after the 30 days of the layoff was deducted from the total length of continuous service. If the layoff exceeded 90 days it automatically became permanent and the continuous service record of the employe was broken. After considerable discussion the conference adopted a resolution asking that the service record of the employe be not broken regardless of the length of the enforced layoff with time lost after 30 days, as previously, to be deducted from the service record.

Amicably Adjusted

The net result of this recommendation was a ruling by the company in which the enforced layoff period was extended to one year provided the employe returned to the company's employment whenever requested. Thus the employes secured for themselves a more liberal

WHAT INDUSTRIAL PLAN HAS ACCOMPLISHED

Some of the things a workable industrial relations plan has accomplished for the Standard Oil Co. of Indiana:

Provided an avenue of approach whereby employer and employe can get together for the amicable settlement of all matters of interest to both.

Created a spirit of harmony and cooperation in which all employes and management, through suggestion and active participation, are boosters and salesmen for the products manufactured and distributed by the company.

Brought two general wage increases which total $4,800,000 annually.

Reduction in hours for process men from a 7-day week to a 6-day week.

Perfected safety work so that loss of life and property and injuries have been greatly reduced.

Provided locker rooms, modern baths and other conveniences which have to do with the everyday comfort and efficiency of employes.

Recreational work systematized and adequate equipment provided for employes and, in a large measure, their families.

ruling of great importance to them in their relation to the Annuity Plan and Employes' Stock Purchasing Plan, the details of which will be explained later.

The Casper, Wyo. representative at the conference told of the home financing problem which confronted employes in Casper, a city of high rents and relatively high real estate values. He outlined a plan of financing which was discussed at the general conference and which is being given consideration by the company's board of directors.

The other papers outlined practical plans for increasing the sales of the products manufactured and distributed by the company through the active cooperation of employes and members of their families regardless of whether they were connected with the sales department. It is reasonable to assume that the sales and safety plans outlined at this conference will prove of as great advantage to the company in the future as they have in the past. Not the least of the benefits accruing from amicable relations between employer and employe is the spirit of good will which compels recognition from the buying public with resulting material benefits reflected in increased business.

Work of Committees

In a general way the subjects mentioned exemplify the nature of the discussions at the joint conferences which are held at regular intervals at the several plants. Since this Industrial Relations Plan has been in vogue, about 1,400 cases have been brought before the joint general committees or councils at the several refineries. These joint general committees make recommendations to the management of the company as to the proper method of adjusting these questions. Of the recommendations made by these committees, 93.3 per cent have been approved by the management of the company and made effective.

The details of the plan are made known to every employe as soon as he becomes connected with the company. It is fully explained so as to minimize the possibility of misunderstanding later.

The plan provides for a joint committee or council. This committee is made up of employes' representatives and management representatives. The various plants are divided into divisions and there is one employes' representative selected for approximately every group of 150 to 200 employes. No official manager, superintendent, department head, or any man who has authority to hire, discharge or discipline men, may be an employes' representative. The management of the company selects their representatives and these may equal but cannot exceed, the number of employes' representatives.

Manner of Elections

After the election, conducted in a manner similar to municipal, State and National elections, including the secret ballot, the elected representative of the employes and management hold a meeting and organize a joint general committee on industrial relations. This committee elects a management chairman and an employes' chairman from the respective groups and these chairmen alternate in presiding at the meetings of the joint general committee. The joint general committee also elects any other officer necessary and decides on the rules and regulations which govern the meeting. No one has any rights to the floor of this committee other than the members of the committee, except by the invitation of the joint general committee.

It is definitely understood, although not a part of the plan, that the executive management of the plants must in no wise instruct the management's representatives by implication or otherwise, as to the attitude which they should take on any subject which would come before the committee. It is definitely understood by these men that they are to vote their own beliefs and convictions on the various matters coming before the committee, without fear that it may in any way affect their relations with their superiors. This matter has been guarded very carefully by the department of industrial relations and by officers of the company, on the grounds that it is to the best interests of all concerned that all members of the joint general committee should feel that they can render and should render a fair and just decision regardless of their relationships either to the management or to the employes.

The joint general committees have caught this spirit to a surprising degree and a perusal of the votes cast by the committees on the various subjects will convince one that the members of the committee do vote their own convictions.

The joint general committee is at liberty to discuss and make recommendations on any subject. The subjects are enumerated in the industrial relations plan as follows:

Wages and hours, employment and working conditions; housing; domestic economies and living conditions; safety and prevention of accidents; sanitation and health; works practice; methods and economies; education and publication; recreation, athletics and entertainment and other matters of mutual interest to employes and management or of especial interest to employes.

Employes' representatives are granted complete freedom of action in their capacity as employes representatives and if at any time an employes' representative thinks that he has been in any way discriminated against on account of his acts as a representative, he may appeal to the director of industrial relations or to any of the superior operating officers of the company including the president of the company. Failing to obtain a satisfactory remedy in this manner, he may appeal to the Secretary of Labor at Washington, D. C., and the decision of the secretary is binding both on the employe and the company. The latter is required to make such reparation as the Secretary of Labor shall deem just.

Freedom of Action

The company also assures the management representatives of their complete freedom of action when acting in good faith as represenetatives. In fact, the term "management representative" is in a sense a misnomer as it is really only a method of signifying how the representative gets his office.

When any subject is brought to the joint general committee for consideration, the usual procedure is to refer it to a sub-committee created by the joint general committee. Take, for instance, a case concerned with wages. When the case is brought to the attention of the joint general committee it will be referred to the sub-committee on wages and hours. The latter committee will make a complete investigation of the case and make a recommendation for its disposal back to the joint general committee. This committee will review the recommendation and has authority to accept or reject it wholly or in part. When the joint general committee has decided what action it wishes to take on the question, it puts it in the form of a recommendation to the management. The management of the plant, after giving consideration to the recommendation, makes its reply to the joint general committee in writing. The joint general committee may accept or reject this reply.

Vote as Individuals

In voting in the joint general committee, each representative, either of employes or management, has the right to cast his individual vote as he sees fit. One or two joint general committees have adopted regulations to insure that the voting power of the employes' representatives and the management's representatives is kept equal. The other committees, however, acting on the basis that they are considering these questions without bias, have decided to disregard any regulations in favor of equalizing the voting power. In all cases, a majority vote is required for final action.

In case the answer of the management on any recommendation made by the joint general committee is unsatisfactory the subject in question is then referred to the president of the company, who endeavors to adjust the same. If the president's action or such course as he may advise fails to dispose satisfactorily of the matter, then a conference is held between the president and the representatives of the employes and action again taken. If agreement is found impossible the question as previously explained is referred to the Secretary of Labor at Washington. Both the company and the representative are obligated to furnish all facts to the government's representatives. In this connection it is worthy of note that during the five years only one case has been brought to the attention of the Secretary of Labor. No other cases have ever been appealed higher than the president of the company who has been able to settle them amicably.

Operation of Plan

Under the plan, no employe may be suspended or dismissed except for one of 16 reasons, which are as follows:

1. Violation of any law.

Special attention is called to the following:

(a) Carrying concealed weapons; fighting or attempting bodily injury to another; drunkenness; conduct which violates common decency or morality of the community.

(b) Stealing or malicious mischief resulting in the injury or destruction of property of other employes of the company.

(c) Cruelty to animals which are the property of other employes or of the company.

(2) Violations of the following safety rules:

(a) Carelessness in regard to accident and safety of fellow workmen.

(b) Riding on standard or narrow gauge equipment or on any moving machinery where not assigned.

(c) Running up blocks on cranes.

(d) Violation of rules governing employes in repairing or oiling of moving machinery.

(Continued on Page 114)

Durnell Talks on Standardization of Pumping Powers

Being the Fifth of a Series

H. G. Durnell

The Eccentrics of the Durnell Underpull Power are very vital factors in the working mechanism. They are made in different sizes each to fit the individual problem. A-1 castings only are used and they are oversize to insure strength.

The Eccentrics are keyed to the shaft and are bolted to the hub of the bandwheel and the dowels at the joints of these parts combine them into one piece. The entire machinery revolves with the shaft.

These Eccentrics are lubricated by a positive bath of oil. Simple, practical design with strength gives to the Durnell Underpull Power features that insure efficient and economical operation at all times.

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BARTLESVILLE, OKLA.

BULLISH ON NEW NAVY IN CHICAGO

(Continued from Page 78)

able in the Chicago region under 80 cents. It is considered that there is some stuff for sale in this region at a lower price than that generally in accord in Group 3. The average price has been 80 cents recently, with many refiners holding out for 85 cents, but no sales reported at this figure. Scarcity of the El Dorado and Smackover grades has been remarkable, with little of this material available at any price. Refiners are not quoting fuel prices over January except in few instances. One marketer who has probed the situation in Oklahoma asserted he did not know of any refiner who had 20 cars of 24-26 grade at any price for spot shipment. Continued demand from the railroads in Oklahoma is said to be responsible for the scarcity of fuel oils there.

Oklahoma lubricants are reported coming back. The bulk of the zero cold test purchases from Gulf Coast refineries are reported to have been made for winter demand. Buyers are now looking to the Oklahoma refineries for the spring demand. Many jobbers are after contracts covering six months or a year and the market is steady on all neutrals with the 200 vis. pale variety favored. Bright stocks are firm, and steam refined stocks are fairly firm. Wax is still scarce. Pennsylvania lubricants have been increased slightly during the past week, and most manufacturers anticipate a good year in 1924.

CALIFORNIA FIELDS

(Continued from Page 42)

other deep well, with which it is not having the same success as it had with No. 5 Andrews. The company's No. 1-A Connett, drilled to 5,220 feet, has been allowed to flow into the pump for several days in the hope that the well would clean itself out. The fluid, however, has been cutting 30 per cent water and the possibility of the cut being substantially reduced by allowing the well to flow, is not very favorable. Just what disposition the company will make of No. 1-A Connett has not been ascertained, but it is probable the company may plug back in the hope of securing small production from the upper sand.

The National Oil Co. completed its well No. 1 at 4,538 feet and ran in a 6¼-inch oil string, but, inasmuch as it refused to respond to the swabbing operations in progress for several days, it will probably be necessary to put it on the pump. Tucker & Johnson have finished deepening their No. 1 well from 3,700 to 4,690 feet, and will probably put it on production some time within the next two weeks. The Union Oil Co. has two wells which should be on production shortly, one of which, however, will probably be only a small pumper. The company's No. 2 Hart would not flow at 4,014 feet and it will undoubtedly be put on the beam. Number 10 Long Beach Community, was finished at 4,983 feet early in the week and a good well is expected when it is put on production.

Santa Fe Springs

There were 12 wells put on production at Santa Fe Springs, but only a few of them were of any consequence. The Petroleum Midway Co.'s No. 1 Wickman, a recompletion after being deepened from 4,504 feet to 4,620 feet, was returned to production doing 2,100 bbls. a day. The oil, which tests 32.1 degrees and shows a cut of 3 per cent, is flowing through a 1⅝-inch bean under a pressure of 365 pounds. This is one of the best completions at Santa Fe Springs for several weeks and recalls to memory some of the many large wells which this field has produced. The Petroleum Midway did not have as good luck with No. 7 Patterson, a new well, as its initial production upon completion in the Meyer zone was less than 100 bbls. a day. This new producer was finished at 4,576 feet but did not have sufficient kick to flow. On the beam, the well is pumping 45 bbls. a day of clean 34.7 gravity oil.

The Shell Oil Co., although it added only 1,920 bbls. of new production, completed the largest number of new wells put on production. The company completed two wells on its Golay lease and one on its Slusher lease, the former property being credited with the largest amount of new production. Number 1 Golay was drilled to 4,680 feet and when put on production made 350 bbls. a day of 33.4 gravity oil. The output, which is flowing through a 1¼-inch bean under a pressure of 250 pounds, shows a cut of 3 per cent. Well No. 10, on the same lease, was finished at 4,644 feet and registered an initial production of 950 bbls. of clean 34.1 gravity oil. This well is also flowing through a 1¼-inch bean, the well gauge showing the pressure to be 380 pounds. Number 8 Slusher, completed at 4,60 feet, was 5 feet deeper than No. 10 Golay but did not show as large an initial production. The output, 620 bbls. a day of 33.1 gravity oil, is flowing through a 1⅝-inch bean under a pressure of 35 pounds. During the coming week the Shell Co. will probably list No. 3 Thompson as a completion at 4,650 feet, at least a 500-bbl. producer being expected.

Both the Standard Oil Co. and the Amalgamated Oil Co. put wells on production during the week, the former being credited with a new well and the latter with a completion. The Amalgamated's recompletion was No. 2 Dewenter, redrilled and deepend from the Bell zone at 3,972 feet to the Meyer zone at 4,05 feet. When put on production the well made 1,600 bbls. a day of 32.9 gravity oil with a cut of 3 per cent. The Standard's new well was No. 6 Santa Gertrudes' completed at 4,688 feet with a 4½-inch oil string landed at 4,668 feet. This well, flowing through a 1⅛-inch bean under a pressure of 175 pounds, is producing 975 bbls. a day of 32.5 gravity oil with a cut of 4 per cent.

Second Effort on Lease

It was expected the Standard would also complete No. 1 A. Sanchez during the week but final preparations had not been completed. This is the Standard's second attempt to secure production on this lease, the company's first well being lost as the result of a hole full of junk at 4,360 feet. The Union Oil Co. also drilled a well on part of this lease, but it met the same fate that befell the Standard's first well. The Union's No. 1 Sanchez at the time of its abandonment showed 4,150 feet of hole. By a peculiar coincidence, both the Union and the Standard were drilling their first wells on this lease at the same time and lost them at practically the same time.

The biggest surprise of the week was George F. Getty's No. 17 Nordstrum, which was brought in producing from the Foix sand, a zone limited in area and heretofore thought exhausted. Getty's new well, finished at 3,474 feet, started off flowing 800 bbls. a day of clean 20.2 gravity oil. In addition to the large output, the well is showing an unusually high gas pressure, 430 pounds. With the completion of this well in the Foix zone, the first in many months, and the rapid decline in production from the Meyer zone, operators are once more beginning to give consideration to the Bell sands as a future source of production. After the opening up on the prolific Meyer zone many wells producing from the Bell zone were immediately killed and deepened for the larger production, while others drilling passed up the Bell sands entirely. It is not altogether improbable, notwithstanding the fact that the Bell zone is regarded as depleted, that many wells in the future will be producing from these sands.

When the time comes to pump the deep Meyer zone wells it may be necessary for some to be plugged back to the Bell zone, because they were finished with too small a string. It is also possible that when production costs increase as the result of smaller production, that wells favorably located will be drilled into the Bell zone in preference to the deep Meyer zone. This condition has not actually presented itself yet, but it is a possibility and will be interesting to compare the present 31 wells producing [illegible]

bbls. a day of crude from the Bell zone, with the number producing from the same zone a year hence.

To Test Bell Zone

During the next week or 10 days, the Mohawk Oil Co. will test the productivity of the Bell zone by attempting to put its No. 4 Batson on production after finishing it at 3,895 feet. The well is showing up good and if a 1,000-bbl. producer is brought in it will disprove the theory that the Bell zone is exhausted. The Ambassador Oil Co. (Wilshire Oil Co.) and the Peterson Oil Syndicate each completed new wells in the Meyer zone but the latter's well No. 2 sanded up a day or so after being brought in. It was put on production early in the week after being drilled to 4,602 feet and came in flowing 575 bbls. a day of 33.8 gravity oil which showed a cut of 15 per cent sand and water. The sand and water increased in such quantities two days later that the well ceased flowing. The Ambassador's No. 3 Baker was brought in after being drilled to 4,676 feet and registered an initial output of 410 bbls. of 33.4 gravity oil. Hopkins and Howland completed the last well put on production during the week, but were rewarded with only a small producer. Their No. 2 Baker, a new well, was put on the beam at 4,679 feet and pumped 91 bbls of 34.5 gravity oil with a cut of 2 per cent during a 24-hour production test. The Southern California Oil Co. has succeeded in putting its No. 1 back on production and this edge well in the southern part of the field is pumping a little less than 500 bbls. daily from 4,620 feet.

Huntington Beach

The largest and most important completion at Huntington Beach for several weeks was the Chicksan Oil Co.'s No. 1 well, an offset to the Petroleum Midway Co.'s No. 1 Plavan on the north and the Holly Oil Co.'s well No. 3 on the west. The new producer was completed at 4,900 feet and finished with 6¼-inch oil string landed on bottom. It is flowing through a ½-inch bean under a pressure of 150 pounds, the daily output, 725 barrels, testing 23.9 degrees and showing a cut of 2 per cent. The Holly Oil Co. followed the Chicksan a few days later but only got a 200-bbl. producer when No. 8 Harvey was brought in. This well, a pumper, is making 23.1 gravity oil with a cut of 10 per cent. The Amalgamated Oil Co. completed No. 18 Miley-Keck but, because the well would not flow, it is not listed as finished. It will be put on the beam some time next week and the company will probably get a 100-bbl. well. The Petroleum Midway Co. is still battling with a water problem on its Columbia lease. Well No. 3 on Columbia Lease No. 1 is pumping 15 bbls. a day, over 65 per cent water, while well No. 3 on Columbia Lease No. 3 is pumping 10 bbls. a day, 35 per cent water. At present there are 252 producing wells at Huntington Beach, 130 of them flowing and 122 pumping. The average daily production per well is approximately 300 bbls., considerably higher than that in any of the older fields. At Santa Fe Springs there are 294 producing wells, 233 of them flowing and 61 pumping. The average daily production per well in the latter field is about 625 bbls. The average daily production per well at Long Beach of 750 bbls. is larger than either of these two, although this field has a smaller number of flowing wells and a larger number of pumpers than Santa Fe Springs. There are 224 flowing wells at Long Beach and 74 pumpers.

Compton

Each new development at Compton makes the Union Oil Co.'s holdings look better and the result of wildcat drilling during the past week was no exception. The failure of the General Petroleum Co. to secure production in its No. 1 Miles, although the well is down 4,540 feet, practically explodes the theory that this new field runs northwest and southeast. Of course the General Petroleum may yet secure production in this well but since it is over 500 feet deeper than the Union's discovery well it does not look very favorable. The General Petroleum has two other rigs up, No. 1 White and No. 1 Austin, and although the location of each does not look favorable, lease requirements compel the company to go ahead. Davis & McMillan and the Julian Petroleum Corp., drilling still further north, have suspended operations and will wait for further developments before resuming operations. Both are deeper than the Union's discovery well but neither had a showing. The Globe Petroleum Corp., drilling several miles away from production, is another company to suspend operations, its No. 1 Vallencinto showing 2,020 feet of hole when drilling stopped. C. S. Thomas, the well known geologist, has stated that he believes the structure to run due east and west. Working on this assumption, he located the Chase Oil Co.'s No. 1 and expects this well to pick up the pay around 3,500 feet. The Chase Oil Co.'s No. 1, which is about a mile west of the discovery well, is temporarily held up with a fishing job at 3,250 feet. The company has secured a sublease of 30 acres from the Julian Petroleum Corp. and if it is successful in securing commercial production the latter company's remaining 50 acres will prove very valuable.

Miscellaneous Drilling

The Standard's Anaheim wildcat, No. 1 Wagner, is progressing very slowly, the well showing 2,600 feet of hole at the first of the week. W. M. Keck has erected a rig at Brookhurst, 2 miles west of Anaheim, and announces it will be drilled regardless of the outcome of the Standard's No. 1 Wagner. There is a pronounced ridge at this point running east and west. The Oakridge Oil Co. is still conducting a series of water tests on its Bandini wildcat, No. 1 Rossi, but to date has not located the source of water. The San Pedro Point Fermin Oil Co. has reached a depth of 2,930 feet in its San Pedro wildcat and, although geological opinion is not favorable, company officials expect some showings of importance soon. The reported strike at La Honda in northern California early in the week proved to be another of those wild rumors circulated possibly to increase the sale of stock. There is still a large amount of wildcatting being done, although a great many tests have passed the stage favorable for production. Due to the great amount of wildcatting, however, the prospect of opening up another new field next year is very good.

Field Operations

Oil field operations reported to the State Oil and Gas Supervisor show 26 new wells started, compared with 15 during the previous week, a total for the current year to date of 1,354, compared with 1,389 at the same date last year. Permits were issued for 11 new wells in the San Joaquin Valley, the higest number for any week during the current year, indicating a renewal of activity in the older fields of the State, as the flush production declined in the newer fields of southern California. Three of the new wells were in the Elk Hills Field and eight in the Midway-Sunset Field. Permits were issued for the following wells:

Torrance

Location,	company, well—
	Bankline Oil Co.—
23-4-14	Bethune, 1.
	Barnett Rosenburg—
14-4-14	Gladys, 2.
	C. C. M. O. Co.—
14-4-14	Kettler, 3.
14-4-14	Kettler, 4.
15-4-14	Torrance, 28.
15-4-14	Torrance, 29.
14-4-14	Torrance, 31.
14-4-14	Cook Drilling Corp., 3.
14-4-14	McDonnell Corp., 3.
	Superior Oil Co.—
14-4-14	Torrance, 11.
14-4-14	Torrance, 12.

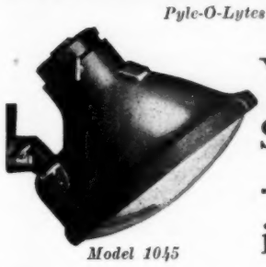
Midway-Sunset

35-32-23	Bell-Evans Oil Co., Inc., 9.
	C. J. Berry—
34-12-24	Hillside, 26.
9-32-23	C. C. M. O. Co., 40.
36-32-23	Formax Oil Co., 11.
17-11-23	Havenstrite & Baker, 1.
36-32-23	Olympia Oil Co., 1.
3-32-24	Pacific Oil Co. 1.
10-11-23	United Oil Co., 1.

Elk Hills

	Pan American Pet. Co.—
1-31-24	Crampton, 8s.
2-31-24	Crampton, 12f.
2-31-24	Crampton, 13f.

Pyle-O-Lytes in Oil Well Derrick Lighting



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They will give you a penetrating beam, or a flood of clear mellow light, according to your needs. NONGLARE reflectors and lenses multiply the efficiency of the lamp by controlling the light and concentrating it where you need it most. One of these big, powerful lights will do the work of a whole battery of smaller lights, with much lower current consumption.

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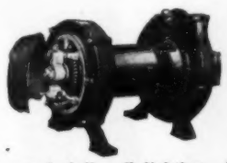

are the most dependable sources of current for oil well lighting. Their first cost is practically their *only* cost! The cost of operation is negligible. Always a service man near you.

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BYERS

GENUINE WROUGHT IRON PIPE

RUST-RESISTANCE

is the biggest word in pipe durability

Not long ago, the superintendent of a large gas company had occasion to pull the casing from some 8 or 10 old gas wells. In all but two of these, the casing was Byers, and was pulled without the loss of a foot of pipe. In the remaining two wells, the steel casing pulled apart repeatedly, having suffered so severely from corrosion as to be unable to stand the stress of pulling, and very little of the pipe was fit to use again.

The life of casing, line pipe, and tubing, largely depends on their rust-resistance. Byer's genuine iron pipe is known to **"wear"** better than steel pipe, largely because, after years of service, it suffers so little from rust that it retains its original physical strength and clean, accurate threads.

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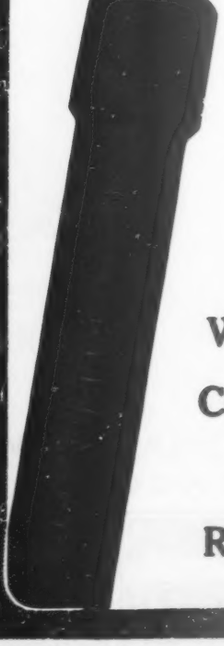

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Genuine
Wrought Iron
Casing Tubing
Line Pipe
Refinery Pipe

GOOD YEAR IN OIL MARKET EXPECTED

(Continued from Page 74)

Bureau of Mines by the oil refiners as kerosene, and it will be interesting to watch the figures published by that body during the next year, giving monthly production, consumption and stocks.

Not only furnace oil, but also distillate fuel oil, industrial fuel oil and bunker oil, are growing in importance to the oil business because of their growing use. Heavy oils are rapidly displacing coal in many uses and the oil industry is taking steps to develop further uses of the heavier oils, which have always sold at prices which indicated the full benefit was not being obtained from them.

Wax

No discussion of refined oil is complete without mention of the importance of the market for wax. During 1922 and 1923 the demand for wax has increased rapidly, although it was not up to the level of 1920. In 1922 consumption, including exports, was approximately 462,818,000 pounds, as against 426,692,000 pounds in 1921 and approximately 550,000,000 pounds in 1920. In the first 10 months of 1923 consumption was 408,600,000 pounds, or at the rate of 490,320,000 pounds for the year. Stocks of wax declined this year to the lowest point in several years, at the end of October amounting to 173,533,000 pounds, a decline of 28,215,000 pounds since January 1.

Between 33 per cent and 50 per cent of the wax demand is supplied by Atlantic Coast refiners. A large quantity of their output goes abroad. In one recent year a large refiner on the Atlantic Seaboard made as much money from the sale of wax as from gasoline.

An unusually large domestic demand for wax has arisen due to a "craze" for candles, which now have found their way into nearly every room of every well appointed house in the East. It is not likely that this so-called "fad" will die out, however, because the more candles are used in interior decoration, the more they are appreciated, not for their practical illuminating qualities but because of the soft light they give, combined with the recognized artistic qualities of candles and candle-stocks in the general scheme of house furnishing.

Candles are used largely abroad, especially in Italy, in connection with religious services, and this forms one of the largest outlets for the domestic wax production.

The Atlantic Seaboard refineries are in an advantageous position from the viewpoint of supplying both domestic and foreign wax consumption. Besides, they are fairly close to the Pennsylvania oil fields, which yield a high grade of crude suitable for its manufacture.

Export Outlook

The general oil export outlook for 1924 is not especially encouraging. This is not because of the political situation abroad, which is generally given as the reason for all unfavorable comment on the foreign outlook, for European nations, at least, manage to use more oil each year despite their political troubles. The world is rapidly turning to oil, because of its many advantages, and political troubles alone will not prevent it.

However, shipments of all oil products from the United States this year have been unusually heavy, due to our large production and low prices. The Pacific Coast is shipping more oil abroad than the Atlantic Coast, and much of it is going to the very same markets the Atlantic seaboard refineries have been supplying. This is a natural duplication of effort, and it is likely that stocks at foreign distributing stations are now abnormally large. This means that as soon as oil prices advance in this country, there will probably be a slump in the foreign movement, inasmuch as foreign distributors are well stocked with cheap oil. Foreign distributors are as averse to buying American oil when it is expensive as they are eager to get it when it is cheap.

As soon as foreign commitments for 1923 are completed, which may run into January of 1924, there may be a drop in our export oil trade.

KANSAS FIELDS

(Continued from Page 40)

lison & Fitzwilliams spudded their No. 1 Conn, SE cor. Section 34-30-1w, and shut it down. Brady Brothers had a show of oil at 3,277-83 feet in their No. 1 Turpin, SW cor. Section 13-33-2, and shut it down. J. Robinson located his No. 1 Barken, NW cor. Section 2-31-1w.

Butler County

A Butler County test was abandoned by the the Massey Brothers, their No. 3 Blankenship, SE cor. NW NW, Section 9-26-8, having been plugged at 700 feet. The Mohutka Oil Co. was drilling at 1,750 feet in its No. 6-A Hance, NW cor. NE SE, Section 27-28-5.

George Neiman's No. 1 McLean, C NW NE NW, Section 30-28-6, was drilling at 3,430 feet. Sutter & Shawver's No. 4 Craig, SW cor. Section 23-28-5, was completed for a 20-bbl. producer after a 10-quart shot in sand at 2,804-09 and 2,835-40 feet. The Yates Oil Co. was spudding its No. 5 Yates, C SE SW SE, Section 36-27-5. Mayer and others were fishing at 2,875 feet in their No. 1 Hazlett, SW cor. Section 12-23-7. Faulders & Merrion abandoned as dry at 3,400 feet their No. 1 Long, NW cor. SE, Section 10-27-3.

Greenwood County

In Greenwood County, there was a little activity. Rigs were in place for Roth & Faroutt's No. 1 Welch, NW cor. NE, Section 14-25-8, and for Polhamus and others' No. 1 Marshall, SE cor. SW, Section 27-24-9.

Ward McGinnis and others abandoned as dry at 2,415 feet their No. 1-A Ladd, NE cor. SE, Section 18-25-9. The Magnolia Petroleum Co. had a 5,000,000-foot gasser in its No. 1 Breeze, NE cor. NE SE, Section 29-26-9, sand being found at 1,094-98 feet. Tom Miller and others were drilling at 750 feet in their No. 1 Estey, SE cor. SW, Section 7-26-9, and Gillespie's No. 15 Swanson, CWL SE, Section 20-23-13, was drilling at 300 feet. Gillespie also had a rig built for his No. 8 Jones, C SW, Section 21-23-13, and in the same section, the Cosden Oil & Gas Co. was rigging up its No. 9 Griblin, CSL NW.

There were three other dusters in the county, one of which was drilled by Russell and others in their No. 1 Every, SW cor. SE NE, Section 32-24-10, having been abandoned at 2,658 feet. Another was Parkns & Jefferies' No. 1 Godfrey, SW cor. NE, Section 18-24-11, which was dry at 2,636 feet, and the Eugenia Oil Co.'s No. 1 Pedroja, NW cor. NE SW, Section 8-22-12, was abandoned as dry at 1,910 feet.

Lock and others had a 40-bbl. well from a sand at 1,726-44 feet, having topped the lime at 1,706 feet. It was their No. 1 Fleming, SE cor. NE, Section 15-24-12. Tatlock and others were drilling their No. 1 Paske, SW cor. NW, Section 9-26-12, at 250 feet, and the Syndicate Oil Co. was down 570 feet in its No. 1 Clopton, SE cor. Section 29-22-10.

Two wells were made into small producers when they were fired with heavy shots. They were Rogers and others' No. 2 Leedy, CWL NW NE, Section 31-22-10, which was given 100 quarts in sand at 2,522-77 feet, making 35 bbls. and the Mission Oil Co.'s No. 1-B Thrall, NE cor. Section 27-23-10, which was cleaning out at 2,347 feet after a shot of 160 quarts in sand at 2,262-2,342 feet, and was estimated good for 30 bbls. Rogers and others had a rig on the ground for their No. 3 Leedy, CNL NW NE, Section 31-22-10.

Across the line in Chase County, the Sinclair Oil & Gas Co. abandoned its No. 1 Browning, SE cor. NE, Section 24-22-9, as dry at 2,530 feet.

EAST CENTRAL TEXAS

(Continued from Page 96)

lish. These were the most notable changes.

The pipe line receipts on December 19 were 78,674 bbls. of which the Atlantic Oil Producing Co. is credited with 742 bbls.; Cobden Fuel Co., 4,171 bbls.; Gulf Pipe Line Co., 11,180 bbls.; Humble Pipe Line Co., 34,136 bbls.; Magnolia Petroleum Co., 5,762 bbls.; Prairie Pipe Line Co., 14,960 bbls.; Sinclair Pipe Line Co., 10,370 bbls.; Simms Oil Co., 2,900 bbls.; Sun Oil Co., 400 bbls.; Texas Pipe Line Co., 763 bbls.; Tidal Oil Co., 3,200 bbls.; U. S. Tex. Oil Corp., 300 bbls.

Following is the production by lease and company on December 19 and December 12:

Production of Powell Field by Company and Lease

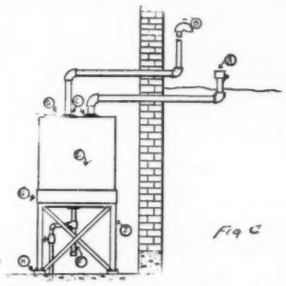
		Dec. 19	Dec. 12
Humble Oil & Ref. Co.			
Blumrosen	4	330	242
Brown	6	1,035	664
Cerf A	8	77	577
Cerf B	3	.....	1,030
Crews	10	2,251	1,648
Davis	16	1,756	3,085
Fleming A	7	1,622	2,302
Fleming B	2	196	124
Gentry A	10	1,586	1,179
Gentry B	3	850	1,020
Humphreys	22	2,493	5,778
Irvine A	5	335	329
Irvine C	10	649	309
E. L. Kent	3	.....	283
G. Kent	12	1,849	1,344
R. I. Kent	1	72	72
W. J. McKie A	5	165	165
W. J. McKie B	10	2,672	2,034
Murchison	3	10	227
Ramsey A	9	840	1,684
Ramsey B	12	2,287	1,890
Walker	7	885	1,076
Total	168	21,960	27,062
Tidal Oil Co. & Buttram Pet. Corp.:			
Crews	7	620	510
Bressie	1	.....	2,685
Phillips	11	1,173	385
Ramsey A	8	1,216	2,735
Ramsey B	7	263	275
Thompson	4	55	35
Total	38	3,327	6,625
Gulf Prod. Co.:			
Barron	5	636	784
Blumrosen	3	108	155
Bush	2	884	832
Christian	6	196	280
Crews	14	6,588	3,312
Gentry	7	634	491
Murchison	8	1,286	1,716
McKie	1	181	176
Smith	5	228	134
Witherspoon	8	186	294
Total	59	10,927	8,174
Humphreys Oil Co.:			
Fair	1	65	20
Kent	8	410	470
R. I. Kent	3	75	85
Burke	1	65	80
McKie	62	8,205	10,725
Kenner	2	10	10
Springfield	2	90	120
Total	79	8,920	11,510
U. S. Tex. Oil Co.:			
Burke	4	310	345
Ramsey	4	35	65
Total	8	345	410
Skelly Oil Co.:			
Gentry	2	.....	.....
Ramsey	3	300	185
Keith	4	2,000	10,010
Total	9	2,300	10,195
Kirby Pet. Co.:			
Fleming	2	1,540	975
Brown	5	412	385
McKie	3	908	765
Total	10	2,860	2,125
McMan Oil Co.:			
Chapman	10	930	1,100
Chapman	6	1,580	1,785
Total	16	2,510	2,885
Roxana Pet. Corp.:			
Blumrosen	4	.....	120
McKie	8	350	425
McKie A	8	1,495	3,880
Total	20	2,845	4,425
R. L. Smith Oil Co.:			
Keith	8	4,769	448
Ramsey	4	434	360
Total	12	5,203	808
The Texas Co.:			
Fleming	11	1,055	915
McKie	8	425	315
The Texas Co.-Magnolia Pet. Co.:			
Kent	16	1,655	1,293
Total	34	3,135	2,553
Atlantic Oil Prod. Co.:			
Irvine	13	1,315	1,800
Kellum	7	2,846	4,902
Total	20	5,816	6,702
Simms Oil Co.:			
Boyd	2	1,760	2,932
Howell	1	1,666	930
Blumrosen	2	.....	320
Kellum	1	348	.....
Rose	3	241	2,075
Total	9	4,015	6,257
R. E. Brooks:			
Cerf	5	656	960
Hughes Oil Co.:			
McKie	2	5	10
McKie	13	440	590
Alexander	3	2,640	2,875
Total	18	3,085	3,475
Empire Gas & Fuel Co.:			
Sweatman	1	15	165
Garland Kent:			
Fleming Kent	11	797	760
Mitchell & Jones:			
Burke	2	375	400
New Domain Oil Co.:			
R. F. Kent	5	265	280
Sun Oil Co.:			
Barron	1	.....	.....
Kent	4	450	503
Witherspoon Oil Co.:			
Burke	9	1,084	2,120
Mutual Oil Co.:			
Howell	4	1,539	722
Collins & Wheelock:			
G. Kent	2	.....	165
Elliott & Others:			
Hill	1	103	405
Parker and Others:			
Cerf	2	1,218	5,970
Texas & Brazon Valley R. R. Co.:			
Right of Way	2	295	.....
Barclay & Meadors:			
Cerf	1	300	385
Bass and Others:			
Gentry	3	84	105
Terrell Prod. Co.:			
Humphreys	1	300	.....
Upchurch and Others:			
Fleming	1	300	.....
Yoder and Others:			
Harvard	1	350	1,185
Miscellaneous:			
Springfield and Christ.	10	330	785
Ttl. all companies	566	85,053	108,116

DOMESTIC BURNERS WITH SAFEGUARDS

(Continued from Page 34)

created and discharge the contents of the storage tank into the furnace room.

In Figure D, a diagrammatic sketch is given showing a pump at (A) drawing the liquid fuel from storage tank (B) through an antisyphoning device (C). This antisyphoning arrangement may be secured by different methods, but the end to be secured is to have all pipe connections into the tank located above the

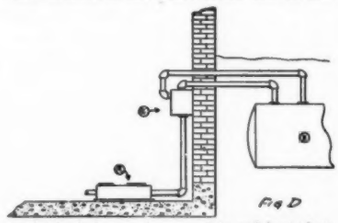


liquid level and the discharge of oil in case of pipe breakage effectually prevented.

Need for Attention

Mechanical appliances must be examined frequently to insure proper performance. Manufacturers are furnishing maintenance instructions, and if proper functioning of the device is to be reasonably expected, these must be followed. It is considered good practice by those actively engaged in this work to examine thoroughly these equipments once each day.

In conclusion it has been noted that many localities have not made use of the



available information on this subject that is published by the National Board of Fire Underwriters. As a result, a very wide difference of practice is manifested in the types of burners and installations permitted. Only those types of equipments, the merits of which have been tested and proved and which are installed in accordance with practices accepted by the authorities should, on the part of the departments having jurisdiction, be allowed, if we who are attempting to safeguard America give the public what it is asking of us.

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More Economical than other packings because it lasts longer

"Palmetto" has no equal under high pressure superheated steam and compressed air pressures.

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Send for free samples to test.

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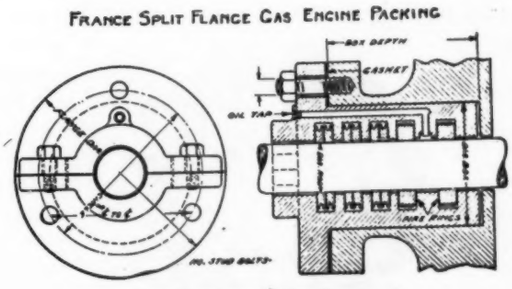
For Any Pressure

Air, Gas, Steam or Ammonia

FRANCE SPLIT FLANGE GAS ENGINE PACKING



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Larkin Improved Sand Pump

(PATENTED)

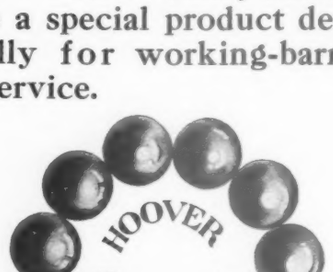
This illustration is the famous Larkin Sand Pump which is found in every oil field throughout the world.

Besides a full line of Drilling and Fishing Tools and Packers of all kinds and sizes, we manufacture the LARKIN Patent Never Slip Pipe Grip, which does away with the old-fashioned way of putting in casing with rope and tongs, and is less expensive, more durable and more easily handled.

LARKIN & CO.

Butler, Pa., U. S. A.

IT is interesting to know that Hoover Balls furnished for oil well use are not ordinary bearing balls but are a special product developed especially for working-barrel and pump service.



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Monel Metal Aluminum
Stainless Steel Balls

HOOVER STEEL BALL CO.

ANN ARBOR, MICH.

WHO'S WHO IN CRUDE OUTPUT OF OKLAHOMA

(Continued from Page 28)

production for that quarter, 28,500,000 bbls.

Burbank-Tonkawa Operations

During 1921 their aggregate quarterly production ran 35, 37, 37 and 39 per cent of the State's total. In 1922 they slowly increased: 41, 42, 43 and 47 per cent. During 1923 it has been 48, 56 and 61 per cent of the State's total production. In other words, during the past three years, the production of these 12 big companies has grown from 35 per cent of the State's total to 61 per cent of the State's total, and from 10,000,000 bbls. per quarter to 24,000,000 bbls. per quarter.

These 12 companies can be divided into two groups: those that operate in Burbank and Tonkawa, and those that don't. Note how evenly the Gypsy's production rocked along until these big pools came in. The same is true of Phillips Petroleum and Skelly, also of Comar, that is owned equally between Marland and Roxana.

In comparing the quarterly production of these large operators in the Burbank-Tonkawa Fields with the quarterly production of the Prairie, Carter, Humble, Magnolia, Sinclair and The Texas Companies who either did not operate at all or had small holdings in Burbank and Tonkawa, one is not impressed so much by the millions of barrels of oil that the Burbank-Tonkawa companies have taken out of these pools as by the "evenness of production" of these big companies. During the last quarter of 1920 Oklahoma oil was $3.50 per bbl., with some nice premiums added. During the first quarter of 1921 the price of oil skidded to $1 and stayed there until fall, but the production of these big companies increased right along, and the production for the State increased on "dollar oil." The price started up in the fall of 1921, and the production of oil likewise, each quarter's production showing a substantial gain over the preceding quarter.

The Smaller "Big Boys"

In comparing the production of these "12,000,000 barrels a quarter" companies with the "24,000,000 barrels a year" companies, we find that during the last quarter of 1920 the 24 companies produced about 5,000,000 bbls. of oil, or about 17 per cent of the State's total. This percentage grew slowly, and during the third quarter of 1923 amounted to 22 per cent, in comparison with the 12 big companies that increased from 35 per cent to 61 per cent during the same period. The aggregate production of the 24 companies grew in three years from 5,000,000 bbls. to about 9,000,000 bbls., a gain of about 4,000,000 bbls. compared with a gain of over 14,000,000 by the 12 big companies during the same time.

In considering the production of the individual companies in the "million a year" class, we note that it ranges from a little over 1,000,000 bbls. each for the Blackwell, the Healdton and the Oil States Companies to almost 7,000,000 bbls. for Waite Phillips. While "evenness of production" is conspicuous among all of the big companies there are not many of the companies in the second group that are consistent producers. Among the companies that have grown steadily and consistently are Amerada, Cosden, Empire, McCaskey & Wentz, Oklahoma Producers & Refiners, Pure Oil, Producers & Refiners, Tidal Oil, Tidal-Osage, Waite Phillips, Wilcox and Wolverine, ranging from 3,500,000 to 7,000,000 bbls. each.

Barnsdall's and Independent Oil & Gas Co.'s production "jumped" in the third quarter of 1921; Transcontinental's in the first quarter of 1922; Slick's in the third quarter of 1922; Blackwell's and Pennok's in the fourth quarter of 1922; Healdton and Oil States' in the first quarter of 1923. The fact that these companies ran along with comparatively small production, some of them for years, and then jumped in a few months to hundreds of thousands of barrels per quarter furnishes an ample canvas on which the "oil stock" promoter deftly paints a glowing picture, to be auctioned off to an unsophisticated public, to the detriment of both the purchasers and the industry.

Concerns Do Not Play "Hunches"

Conceding that the element of "good luck" is present about as often in the search for oil as in the search for wealth in any other line of endeavor, the fact remains that the big companies are not playing luck, hunches, wiggle sticks or doodle bugs—but structures—and making big money doing it.

The 12 companies and the 24 companies, together, have produced an aggregate of about 275,000,000 bbls. of oil during the past three years. These 36 companies account for 65 per cent of the State's total production during this period, while about 1,360 companies and individuals account for the remaining 35 per cent. During the fourth quarter of 1920 the 36 companies (less Comar and Independent Oil and Gas) produced 52 per cent of the State's total, while 1,350 produced the remaining 48 per cent of the oil. Three years later (the third quarter of 1923) these 36 companies (less Blackwell and Transcontinental) produced 83 per cent of the State's oil, while about 1,280 produced the remaining 17 per cent.

Summarized in figures the record stands about as follows:

Companies, 12; fourth quarter, 1920, 10,000,000, 35 per cent; third quarter, 1923, 24,500,000, 61 per cent; companies, 24; fourth quarter, 1920, 5,000,000, 17 per cent; third quarter, 9,000,000, 22 per cent; all other companies; fourth quarter, 1920, 13,500,000, 48 per cent; third quarter, 1923, 7,000,000, 17 per cent.

The Smaller Companies

In compiling these statistics another set of figures was put together showing 80 companies with production ranging up to about 100,000 bbls per quarter, with occasional "spurts" above that figure. For lack of space this table is omitted, but the "unevenness" of production of individual companies is much more pronounced among these 80 producers than among the 24 producers. These 80, together with about 1,200 others, account for the 7,000,000 bbls. of oil that the "small operators" produced during July, August and September, 1923. During this same quarter the Gypsy Oil Co. produced more than half as much oil as the 1,280 small operators put together—Phillips Petroleum and Skelly, together, produced almost as much as the 1,280—while the 12 big companies, together, produced about three and one-half times as much oil as the 1,280 small producers.

The warped, distorted mind of a radical agitator and soap box orator might easily imagine that these facts are "indisputable evidence that the oil industry is being slowly gobbled up by vast combinations of capital whose sole policy is to break the little operators, build up a gigantic monopoly—and then ruthlessly rob the people"—and yet nothing is further from the truth.

The industries of the world, moving with the tremendous momentum of the last 50 years, have great basic trends—and in translating these oil figures, in terms of our present industrial development, we find that there is no essential difference between the "basic trend" of the oil industry and other great industries. In all industries today the general tendency is for the earning power of invested capital to grow smaller while capitalization and "organizations" grow larger.

Within the last 50 years probably no other industry in the world has rendered to "the people" a fuller measure of service than has been performed by the petroleum industry, and there is no gainsaying the fact that this high quality of service has been made possible largely by the great resources of the big companies.

Big Business Necessary

The automobile industry, scarcely more than 20 years old, has slowly narrowed down from hundreds of "small manufac-

turers" to a comparatively few great companies, amply financed and with great "organizations" that have helped to give us the best and cheapest automobiles in the world. It is entirely conceivable that a certain type of "small manufacturer" might imagine that the industry is today in the grasp of a few great devouring monsters that "break" everybody and everything that opposes them. But what thinking man would even suggest that we would have either better or cheaper automobiles if there were 10 times as many manufacturers as there are today?

Fifty years ago there were countless "small manufacturers" of agricultural implements—today there are only a few large companies with tremendous financial resources and great organizations—and who would suggest that the farmer would have either better or cheaper farm implements if there were 10 times as many factories as there are today?

While it is absolutely true that, as compared with three years ago, the "big companies are producing more oil and the small companies less," it doesn't follow that this is the result of a deliberate plot on the part of the big companies either to attempt to destroy the small producers or to take advantage of "the people." On the other hand it is most convincing evidence of the operation, within the oil industry, of the same inexorable and beneficent economic laws that are operative today in every other great industry—and the same kind of general analysis that has been applied to the Oklahoma oil situation would reveal the same general condition, and the same "basic trends," if applied to any other great industry.

When we begin to realize that the bigness of big organizations lies not so much in the bigness of their tangible assets as in the bigness and soundness of their business principles and policies, we will quit indulging in the "indoor sport" of hammering big corporations—just because they are big.

NEW BRUNSWICK SHALES

Because of the gas shortage in the vicinity of Moncton, interest has been revived in the shale deposits of Alberta County, New Brunswick, which cover large areas. Numerous wells have been sunk in these deposits from time to time and some oil has been obtained. An experimental plant was built in 1921 for the reduction of shale but the cost of producing oil in this way was found too high. Investigations are under way to ascertain whether it is possible to utilize these shales now on a commercial scale.

GAS SHORTAGE AT PRYOR

PRYOR, Okla., Dec. 22.—There will not be enough gas this winter for both cooking and heating. This information was given out by those in charge of the gas field here. It was stated that the full pressure of the Cook Field now is on, and with the first cold snap the pressure will weaken. Unless strict conservation is practiced, it will be impossible to secure sufficient gas for cooking purposes. Thomas J. Harrison, mayor, intimated that he might officially request citizens of Pryor to refrain from using gas for heating. If this is done, it is possible that Pryor can get through the winter with plenty of gas for cooking.

U. S. OIL FOR WEST AFRICA

There were 5,321 tons of petroleum imported into French West Africa in 1922 against the average importation of 4,520 tons per annum during the period of 1909-1913. During the period before the war the United States supplied 40 per cent of the importations, the United Kingdom 24 per cent, Germany 18 per cent, and France 10 per cent. In 1919 the importations from the United States represented 94 per cent of the total; 90 per cent in 1920 and 1921, and 89 per cent in 1922.

GREAT IMPROVEMENT IN EASTERN MARKET

OIL CITY, Pa., Dec. 24.—There has been a great improvement in the conditions surrounding the refining markets in northwestern Pennsylvania during the past week. Nearly all of the products show a better tone and price increases have been recorded for the bulk of the list.

Cylinder stocks furnish the feature news of the week. They are very strong with big demand and much improved prices. The big fellows are reported in the market for cylinder stocks and both the Standard Oil Co. of New York and the Atlantic Refining Co. are said to be placing orders. There is no big surplus of this product in this territory and the refiners are said to be well taken care of with orders. Many of the jobbers are seeking to place orders for future deliveries but the majority of the refiners are refusing to quote over a period which exceeds three weeks.

The gasoline market has been affected by the Western situation. The local refiners are attempting to chalk up prices for motor fuel. The demand has been fair and is much greater than for the same time last year. One element that has helped to keep up the demand for gasoline is the open weather and the fact that there is practically no snow in the Eastern territory with many more automobiles moving than would be the case if the snowfall had been heavy. Local jobbers are expecting an increase in the gasoline tank wagon prices soon.

Kerosene has been holding its own during the week and the oil trade does not expect much more than this until the kerosene tank wagon prices are revised upward.

Fuel oil is stronger than it was last week and the movement has improved.

Neutrals continue in good demand with better prices.

Wax is very strong and prices for it higher. There is a good demand for wax and it is very scarce in northwestern Pennsylvania.

CALIFORNIA RECEIPTS AND PETROLEUM IMPORTS

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended December 15 totaled 1,846,000 bbls., a daily average of 263,714 bbls., against 1,142,000 bbls., a daily average of 163,143 bbls. for the week ended December 8.

At Atlantic Coast Ports—	
Baltimore	381,000
Boston	72,000
New York	751,000
Philadelphia	402,000
Total	1,606,000
Daily average	229,428
At Gulf Coast Ports—	
New Orleans and Baton Rouge	240,000
Daily average	34,286
Total Atlantic and Gulf Coast Ports	1,846,000
Daily average	263,714

According to figures collected by the American Petroleum Institute, imports of crude and refined oils at the principal ports for the week ended December 15 totaled 1,601,000 bbls., a daily average of 228,714 bbls., compared with 2,787,000 bbls., a daily average of 398,143 bbls. for the week ended December 8.

At Atlantic Coast Ports—	
Baltimore	149,000
Boston	125,000
New York	120,000
Philadelphia	160,000
Others	218,000
Total	772,000
Daily average	110,285
At Gulf Coast Ports—	
Galveston district	276,000
New Orleans and Baton Rouge	403,000
Port Arthur and Sabine district	130,000
Tampa	20,000
Total	829,000
Daily average	118,429
At All U. S. Ports—	
Total	1,601,000
Daily average	228,714

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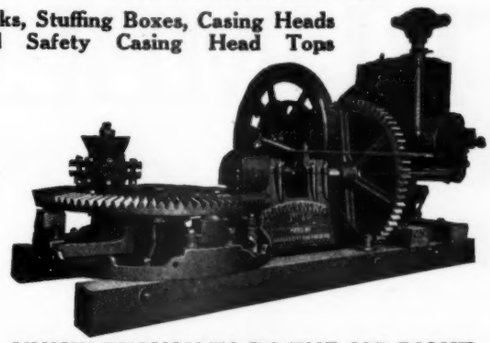

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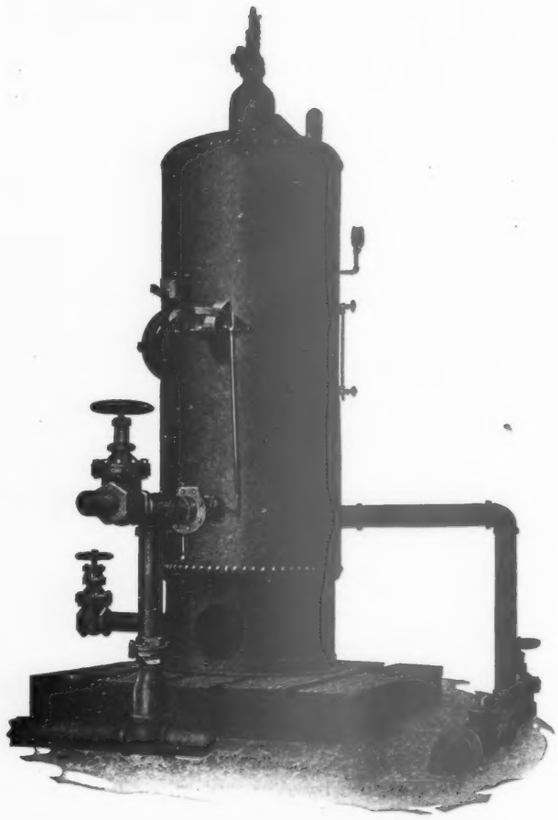

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YEARS OF THROAT-CUTTING IN OIL WORLD

(Continued from Page 21)

through. The tankers had been idle for a long time and the men were keen to get into action. In the nine months ending September 30 of this year 37,373,000 bbls., an average of better than 4,000,000 bbls. monthly or about 140,000 bbls. per day, were transported from California to the Atlantic and Gulf ports.

One can gather some idea of the powerful effect the California movement had on the Mid-Continent situation when one considers that for the nine months of this year 33,277,000 bbls. were delivered to Atlantic Coast ports. This movement represented 60 per cent of the 57,185,517 bbls. of domestic crude oil run by Atlantic seaboard refineries during the same period, the port of New York receiving the largest shipping with a total of 17,799,000 bbls., Philadelphia being second with 5,073,000 bbls. Practically all of the deliveries in the harbor of New York were made to the Standard Oil Co. of New Jersey and the Standard Oil Co. of New York. Practically all of the Philadelphia deliveries went to the Atlantic Refining Co.

The peak of the movement of crude oil from California to the Atlantic Coast perhaps occurred in the month of October of this year when a total of 5,931,000 bbls. were brought around, averaging close to 200,000 bbls. daily. The movement of California crude will continue for some months yet, but will be in continuously decreasing quantities.

Effect on Mid-Continent

The effect of the movement of California crude around to the Atlantic was the slowly damming up of the supply of Mid-Continent crude oil within its borders. No industry could have survived the loss of 60 per cent of its greatest market without sustaining terrible losses. This damming up of the great Mid-Continent production, cutting the Mid-Continent production cutting marketers of crude oil off at the pockets by the Seaboard Refineries naturally made it easy for Mid-Continent refineries to get plenty of oil at posted prices. An overproduction of crude, and especially of light gravity crude such as Tonkawa and Burbank, meant large quantities of gasoline, more of it being manufactured than could be readily absorbed by the trade. Every effort was made to maintain a price for gasoline that would be fair to the public and the producer throughout the great Mid-Continent consuming field.

The Standard Oil Co. of Indiana, the dominant price factor in the matter of tank wagon prices, deserves the thanks of the industry for its effort to maintain a price which would give the industry a fair return on its investment. It did its best and it did well, but as the oil from California rolled into the Atlantic Seaboard and the Seaboard Refiners continued to curtail their purchases of crude and refined in this area the prices worked continually to lower levels.

Week after week we were surfeited with tank wagon reductions. It was demoralizing in the extreme, especially during the period of our greatest consumption, at a time when we should have been able to have made some money. Due to the enormous quantity of gasoline available in the Mid-Continent area everybody went into the sale of gasoline. Filling stations were built overnight, pumps were put in and a vast amount of burdensome and unnecessary equipment was thrown into the business. Everybody lost money but the jobber; he could buy distressed gasoline at any price in car loads and sell it to the public at a profit.

Prices Below Cost

This demoralization within the refined industry continued until prices reached a level well below the cost of producing and marketing same. Prices of gasoline on November 15 were perhaps at their lowest point. In the Mid-Continent territory New Navy gasoline could be bought at 5 and 6 cents f.o.b. the refinery. In Dallas, Fort Worth and San Antonio the filling station price fell to 9 cents and the distributor absorbed a 2-cent tax, making a net 7 cents retail price. At St. Louis the service station price was 13.35 cents; at Chicago it was 14 cents; at Kansas City it was 13.9 cents and at Des Moines it was 14.5 cents. So demoralized was the refined situation that in some places for a day or two prices went down as low as 5 cents per gallon at filling stations.

These conditions obtained notwithstanding the greatest increase in consumption of gasoline in this territory ever seen in the industry. George M. Moore, president of the Western Petroleum Refiners' Association, speaking before the Petroleum Institute a few days ago, had this to say with regard to the situation:

> "With an increase in the consumption of gasoline of more than 26 per cent, of lubricating oil of 15 per cent, of kerosene of 1 per cent, and of refined fuel oil and gas oil of 11 per cent over the first 10 months of last year, most of the refiners who buy crude oil in the open market have found themselves scraping the bottom of their cash registers and carrying heavy obligations with their bankers.
>
> "It is now more clearly apparent than ever before that the preservation of a fair equilibrium between the supply and the demand for gasoline and for other petroleum products is equally essential to the welfare of the producer, refiner and the public."

Condition Unparalleled

No such demoralized condition ever occurred in the industry before. Prices went to pieces in the Atlantic seaboard market. While the situation there was not as acute as in highly competitive territory, such as the Standard of Indiana territory and Oklahoma and Texas, it was bad enough to reduce prices below the cost of manufacture. What George Moore said about the condition of the independent refiner is, no doubt, true with the Atlantic seaboard refiners if they would confess the truth of the matter. Their balance sheets will not justify the movement of so much California crude to their plants. Had they absorbed even 50,000 bbls. a day more of Oklahoma crude during 1923 than they did absorb, prices would not have become so badly demoralized; production in the Mid-Continent Field would not have dropped to such a low point and their outlook for a crude supply for 1924 and 1925 would not now be so gloomy. Every barrel of oil moved from California to the Atlantic seaboard cost the industry more than $5 per barrel in actual loss and an additional $5 a barrel in fair profits they should have earned. The tank wagon prices throughout the country tell the story.

Lesson to Be Drawn

The events of this year must bring to the Mid-Continent producer the stern realization that the policy of the Atlantic seaboard refineries has undergone a change in recent years; that it is no longer what it was 10 years ago, when they refused to go into foreign countries in search of a crude oil supply and when they maintained a fair price for the small producer in Pennsylvania, regardless of the overproduction of Oklahoma. Their policy today, as shown by their action in 1921 and 1922 in flooding the country with Mexican crude and this year in demoralizing the industry by their heavy purchases of California crude, demonstrates very clearly to my mind that their present and future policy will be to buy in the market where they can get the goods the cheapest, gravity, recovery and transportation costs considered, regardless of race or country.

Having arrived at this conclusion, it is my duty to advise the Mid-Continent oil industry, whether he be producer, refiner, or pipe liner, whether he be independent or former Standard Oil subsidiary, that, if we are to avoid another such period as we have gone through this year, it should be our policy, and we should earnestly endeavor, each and all of us, to carry it out by restricting as

for as possible our production to the needs of those refineries which by reason of their location can be depended upon to support the Mid-Continent structure, and these refineries should receive the support and earnest cooperation of every one in the industry. Operators, both producer and refiner, should realize that when the production of crude in this area exceeds, to any appreciable extent, the needs of refiners dependent on it (and I include in this group all the refineries and pipe lines from the Alleghany Mountains to the Rockies and from the Great Lakes to the Gulf) the danger signal should be hung out and efforts should be made to arrest any further increase in production, for you may be assured that every effort is being made to open new pools in California, Venezuela, Columbia and other countries, and at any time a large and prolific area may be opened up and the industry may find itself confronted with another situation such as the flood from Mexico in 1921 and the one from California this year.

Should Reduce Costs

Every effort should be made to reduce transportation costs and production costs so as to be able, at all times, to meet coastal competition.

Extravagant, reckless and riotous drilling of wildcat wells should be avoided. The supply of oil in this area is not inexhaustable. Just remember that at one time the herds of buffalo roamed this country in great numbers; that among the golden sunflowers of Kansas and the azure blue-bells of Texas there once nested great flocks of prairie chickens. These herds and these flocks were much more numerous then than are now the productive oil structures, but they are gone. Civilization was too much for them. It extravagantly destroyed them for the sport of it. May I not say, in closing, that unless there is conservation in the preservation of these oil structures it will be but a comparatively short time until they will be as scarce as the buffalo and the prairie chickens which once roamed over them.

OKLAHOMA FIELDS

(Continued from Page 38)

No. 23-B, CNL NE NE, Section 32-24-8, was plugged back to 2,305 feet from a total depth of 2,605 feet, and was good for 40 bbls. naturally from sand topped at 2,300 feet. Thompson-Black and others had a 100-bbl. flowing well in their No. 1, SW cor. NE NE, Section 29-22-8, from sand at 2,748-2,832 feet, after plugging back to 2,870 feet from 2,931 feet.

The Mutual Oil Co. had hard luck with its No. 6, SW cor. SE SE, Section 2-22-10. Top of the sand was found at 2,232 feet, and the oil pay at 2,235 feet. At 2,236 feet, it started flowing and was estimated as good for 540 bbls. the first 24 hours, but went into water. The water was shut off and it is now making 100 bbls. daily. Gravity of the oil is 40 degrees.

F. A. Gillespie's No. 21 CNL NE NE NE, Section 8-20-12, has been completed for a 90-bbl. pumper. It was good for 3,600 bbls. naturally, originally from oil sand at 2,050-54 feet, but went into water.

The I. T. I. Oil Co.'s No. 318, CSL NE, Section 34-29-11, was a gasser in sand at 908-15 feet, making 1,250,000 feet. The Owen-Osage Oil Co.'s No. 262, CEL NW SW, Section 9-22-11, was good for 6,000,000 feet of gas from sand at 2,050-74 feet. The Oklahoma Natural Gas Co. had another in its No. 632, CEL NW NW SW, Section 27-20-12, which was making 12,500,000 feet from sand at 1,732-39 feet. The Barnsdall Oil Co.'s No. 18, CSL NE NE NW, Section 9-20-12, picked up both gas and oil sands, the former at 1,969-86 feet, and the latter at 2,024-38 feet, and was producing 12 bbls. of oil and 1,250,000 feet of gas.

Several dry holes were recorded, C. B. Peters having one at 2,525 feet in his No. 1, CSL SE NE, Section 22-26-9, and the Osage-Alleghany Oil Co. at 1,805 feet in its No. 2, NE cor. NW SE, Section 33-25-12. The Superior Oil Co. also abandoned its No. 5, NW cor. SW, Section 27-20-12, as dry at 2,271 feet.

The I. T. I. Oil Co. was drilling its No. 319, SE cor. NE, Section 34-29-11, at 500 feet. The Mutual Oil Co. abandoned location for its No. 21-B, SE cor. NW NE, Section 32-24-8, and was moving in a machine for its No. 3, NE cor. SE, same section. The Marland Refining Co. had a rig built for No. 4, CWL SW SE, Section 20-23-8, and work was under way on the rig for No. 5, CSL of the same 40 acres.

Rigs were in place for the White Oil Corp.'s No. 3, SE cor. SW SE, Section 17-23-9, and for the Mutual Oil Co.'s No. 7, C SE SE, Section 2-22-10. The Owen-Osage Oil Co. was spudding No. 269, SW cor. SE NE, Section 3-23-11, and the Tidal-Osage Oil Co. had a rig up for its No. 1, SW cor. SE, Section 21-20-12.

Producers and Completions

In the Wewoka area, the Independent Oil & Gas Co. and Atlantic Oil Co. made a 150-bbl. well out of their No. 3 Long, NW cor. SW NE, Section 32-8-8, sand being found from 3,106 to 3,120 feet. The Dixie Oil Co.'s No. 3 Long, SW cor. SE NE, Section 32-8-8, was good for 60 bbls. on the pump from sand at 1,843-61 feet.

Twelve tests were drilling in Section 33-8-8, one rig was on the ground, one rig was built and one location was staked. Only four of these were at important depths. The Independent Oil & Gas Co.'s No. 1 Foster, in the NW cor. NE SW NW, was drilling at 3,135 feet after setting the 4-inch liner at 3,130 feet, and the same companys' No. 2 Foster, in the NE SW NW, was setting the 5-inch pipe at 3,062 feet. The Producers & Refiners' Corp.'s No. 4 Foster, in the SW NW NW, had a fishing job at 2,780 feet. The Dixie Oil Co.'s No. 1 Dunn, NE cor. SE NW SW, was drilling at 2,220 feet, and the same company's No. 1 Parker, SW NE NW, was below 1,950 feet.

Location was made for the Dixie Oil Co.'s No. 1 Parker, in the NW SE NE, Section 33-8-8, and a rig was on the ground for the Producers & Refiners Corp.'s No. 1 Long, C NE SW SW, same section. The Dixie Oil Co.'s No. 3 Foster, C SW SW NW, was drilling at 1,750 feet, and the same company's No. 1 Long, C NE NW SW, was 1,600 feet. The Magnolia Petroleum Co.'s No. 2 Parker, C NW SE NW, in Section 33, was drilling at 1,660 feet.

The Independent Oil & Gas Co.'s No. 2 Long, SE cor. NE SW NE, Section 32-8-8, was shut down at 3,220 feet with a hole full of water after getting shows of oil at 3,190-95 and 3,210-18 feet. The Dixie Oil Co.'s No. 4 Foster, SW cor. NE NE, Section 32-8-8, was drilling at 2,750 feet. The same company's No. 1-A Harris, SE cor. NW NE, in the same section, was plugged back to the 3,140-59 foot level after getting a hole full of water at 3,212 feet. When it drilled through this sand, the hole carried 75 feet of oil. Another sand, found at 3,190-96 feet, was dry.

The Dixie Oil Co.'s No. 2 Harris, SW cor. NW NE, Section 32-8-8, was fishing at 1,140 feet; No. 4-A Long, SW cor. NW SE NE, same section was drilling at 2,475 feet; No. 5-A Long, NW cor. SW SE NE, was drilling at 1,765 feet; No. 1-B Long, NW cor. NE SE, was drilling at 1,730 feet.

Graham Field

The Graham Field of Carter County continues to offer interesting new producers. The Schermerhorn-Young Oil Co. completed a 41,000,000-foot gasser, its No. 7 Sparks, C SE NW SW, Section 30-2s-2w, having found several broken sands, the first one being topped at 1,780 feet, and the lowest at 2,132-36 feet. At the hole's total depth of 2,174 feet, the bit was 2 feet in an oil sand.

Two new tests are being started to the north and northwest of the Graham Field. Joe Lathrop is building a rig for his No. 1 Davis, C NE SW NW, Section 23-2s-2w, and the Humble Oil & Refining

(Continued on Page 110)

WHY BUY TANK CARS

More Economical to Lease

Car Repairing

Steel Plate Work

At the present leasing prices, it is a decided economy to lease and not buy tank cars.

A privately owned car must carry, in addition to its initial cost, such items as interest, depreciation, obsolescence, repairs and operating expenses. Every day this car is idle represents a complete loss.

To say that leasing cars is more economical would prove nothing. But to compare your cost of upkeep with North American rental charges would be positive proof.

Let us quote on the cars you need. Long or short leases.

NORTH AMERICAN CAR CO.
327 S. LaSalle St., Chicago

Car Works: Chicago, Coffeyville, Tulsa

Southwestern District Office
Petroleum Bldg., Tulsa

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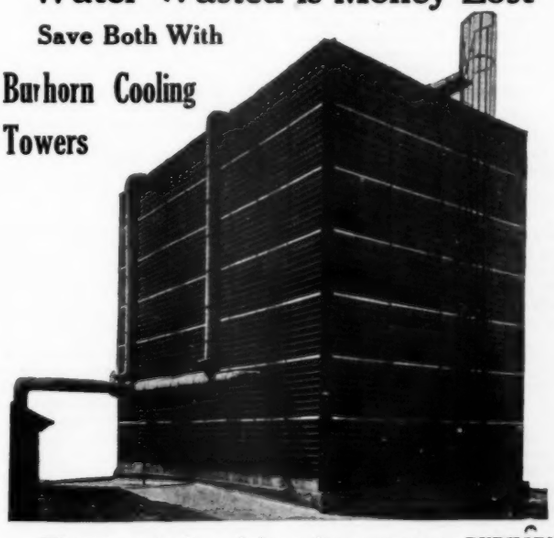
NORTH AMERICAN CAR CO.

LESSORS OF TANK CARS

Water Wasted is Money Lost

Save Both With

Burhorn Cooling Towers



Wherever water is used for cooling purposes, a BURHORN COOLING TOWER will reduce your water consumption 90% or more and reduce the cost of the water proportionately.

BURHORN COOLING TOWERS are particularly well adapted for refineries, natural gasoline plants, pipe line stations, refrigerating plants, oil, gas and steam engines etc. Complete units, to meet individual requirements, furnished in all sizes up to 1,000 gallons per minute capacity and larger, down to the Burhorn "SMALTOWER," especially designed for small installations where the capacity does not exceed 20 gallons per minute.

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25 CENTS per line first insertion; 15c per line each additional insertion. Cash in advance.

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COPY must be in our office Friday prior to date of issue. Average 6 words to the line. Cash in advance

LEASES—PRODUCTION

WILL FURNISH a 320 to 2,500-acre block in Mendocino County, California, for drilling contract. W. N. Voegtly, 455 West Tenth St., San Pedro, Calif.

FOR SALE—At bargain prices, oil and gas leases, production and royalties in the Kentucky shallow fields. For full particulars and maps, address W. P. Harley, Bowling Green, Ky.

TEXAS OIL LEASES 10c an acre up to $10 an acre. Will sell tracts of 10 acres or more. Have 30,000 acres to choose from. All new five-year leases. Get full particulars. Gulf Realty Co., 1093 Bedell Bldg., San Antonio, Tex.

I HAVE wildcat acreage for sale in vicinity of well located by the same geologist who discovered the Sayre oil field and recommended by him to be as safe an investment as the Sayre Field. I can sell for $2 per acre and up. Dr. W. R. German, Canadian, Tex.

10c AN ACRE and up for leases in Guadalupe, Blanco, Medina, Zapata and many other counties. Will sell 10 acres or more. All new five year leases. Get particulars. Gulf Realty Co., 1014 Bedell Bldg., San Antonio, Tex.

FOR SALE — 300-acre farm, all in cultivation, adjoining Checotah, Okla., on main line Missouri-Kansas-Texas Railway and Jefferson Highway; large house, barn, city water, light and gas; no better location in Oklahoma for grain, fruit, dairy and stock farm. If interested, write the owner for price and terms. A. G. Harmon, 506-7 Exchange National Bank Bldg., Muskogee, Okla.

FOR SALE—Leases or production in shallow field, wells from 700 feet to 950 feet deep. Will sell acreage or production cheap. Owner, P. O. Box No. 385, Logan, Ohio.

ATTENTION, Oil Man or Investor: 45-section improved ranch in central Gray County, Texas, in line with present oil development, $10 per acre in fee; unusually good terms. Other choice Panhandle propositions and leases on demand. Address G. C. Davis, Amarillo, Tex.

Production
Drilling Blocks
Leases and Royalties
Geological Value Given Preference
J. M. Allen
902 Petroleum Bldg. Tulsa, Okla.

WEWOKA leases and royalties; drilling proposition. Only first-class stuff offered; guarantee delivery. E. E. Tomlinson, Box 363, Wewoka, Okla.

POTTAWATOMIE COUNTY leases and royalties. B. H. Rowlett, Tecumseh, Okla.

SETTLED PRODUCTION for sale in Warren County, Kentucky, 5 barrels, 2 wells, 500-foot drilling, production 4 years old. Price $4,000. Box 365, Bowling Green, Ky.

1,000 ACRES leases in Fisher County, Texas. Good location, near prospective wells. Price $10 per acre. Write for details. Ancil T. Brown, 306 Guaranty Bldg., Indianapolis, Ind.

OIL MEN—Take Notice: If you want leases and royalties in the new Russell County oil field, write to us. Also a large block of acreage to exchange for drilling contract. B. A. Brungardt, Victoria, Kans.

Adjoining property north pumping at 500 and 880 feet. Flowing well at 1,200 feet estimated to make 200 to 1,000 bbls. a day when drilled in; 44.8 gravity oil, 55 per cent gasoline, 25 per cent kerosene, 15 per cent lub. and 5 per cent fuel and res. Property under contract for sale to Utah Oil (Standard).

40-ACRE farm, good house, barn, well, orchard, part bottom, about 20 acres cultivation, close to school, church and small town; horse, pigs and chickens. First with $650 gets farm and all. -Bee Vanemburg, Moorefield, Ark.

LEASES—PRODUCTION

BEST SEMI-PROVEN acreage in Wyoming, on structure, 2,560 acres.

Adjoining property south just contracted to Salt Creek operators for drilling to start in 30 days, expect oil in 60 days. Other wells now drilling and contracted.

Will consider offers for sale of portion of tract, of drilling contract, or will share on first cost basis with parties providing part funds for development. Send dollar for map and reports. R. C. Horn, 410 Scott Bldg., Salt Lake City.

ROYALTY for sale in 9-9, Hughes County, Oklahoma. Offset to drilling well located between two oil wells. Address Box A-21, care The Oil and Gas

FREE LEASES—San Juan Basin, to developers. New Mexico's famous high gravity territory; 160 to 20,000 acres. Edward C. Hall, Sugar Land, Tex.

WEWOKA, OKLAHOMA'S newest oil field, leases and royalties in Seminole and Pottawatomie Counties. Royalty in 33-8-8. W. R. Turner, 2123 Warren Ave., Chicago, Ill.

FOR OIL and Gas Leases on school land in the famous San Juan Basin, New Mexico, priced right, address P. O. Box 366, Farmington, N. M.

FOR SALE—Leases and royalties in Arkansas oil belt, Ouachita, Columbia and Lafayette Counties. Address Box 562, Magnolia, Ark.

PRODUCERS, Refiners and others interested can secure protection acreage on one of the best anticlines in Montana. Recommended by U. S. G. S. and leading private geologists. Test well now drilling. Walter F. Brittan, Poplar, Mont.

WILL TRADE oil leases near drilling well in Childress County, Texas, on structure for similar leases or royalties near other drilling wildcat wells. Our well is fully financed and contracted to reliable people. No rentals till 1926. 300 Alworth Bldg., Duluth, Minn.

SHEFFIELD TERRACE (Marathon Fold) and Balcones Fault leases. We have them for 10c an acre up in tracts of 10 acres or more. All new five-year leases. 30,000 acres to choose from. Get particulars. Gulf Realty Co., 1017 Bedell Bldg., San Antonio, Tex.

LEASES FREE for drilling offsets. Allen and Warren Counties, Kentucky; 300 to 600 feet deep. Box 489, Bowling Green, Ky.

OIL OPERATORS—Montgomery County, Mississippi, world's next big oil field; 3,000 acres leases for well. W. C. Brooks, 282 S. Front St., Memphis, Tenn.

OIL LEASES

We have leases 20 to 50 miles from the new Luling Field in Texas from 10c an acre up to $1 an acre in tracts of 10 acres up to 10,000 acres. We have many other leases along Balcones Fault and Sheffield (Marathon Fold) Terrace. Here are a few of our leases:

Blanco County	10c an acre
Bandera County	30c an acre
Comal County	15c an acre
Hays County	20c an acre
Guadalupe County	$1 an acre
Kerr County	15c an acre
Medina County	40c an acre
Travis County	25c an acre
Zapata County	$1 an acre

We also have leases less than 1 mile from production at higher prices. All these leases are the standard form 88 5-year leases and all were bought direct by us from the land owner, which accounts for the extremely low prices. We have 30,000 acres on hand to take care of your orders. Don't send any money now; get particulars and maps first. No obligation.

GULF REALTY CO.
1022 Bedell Bldg. San Antonio, Tex.

FOR SALE—Bargain improved 5 acres at Butler, Mo.; bluegrass; fine for dairy and poultry business. J. P. Hart, Butler, Bates County, Missouri.

AS WE BID Old 1923 an affectionate farewell and hopefully salute the Young Giant, 1924, we are ever mindful of the Classified advertisers and readers whose loyalty and patronage have elevated this Classified Wants Section to the high position of esteem and respect in which it is held by the men of the producing and refining industry.

It has been a pleasure to serve these men and it is hoped that we may have the privilege of helping them at all times.

If your wants are large or small you can rest assured that The Oil and Gas Journal Classified Wants Section will deem it a pleasure to have the privilege of helping you to make 1924 bright and prosperous.

FOR SALE—EQUIPMENT

FOR SALE—Used casing and line pipe in A-1 condition, all sizes. Write or wire for prices. Cisco Pipe & Supply Co., Cisco, Tex.

FOR SALE — A 28 Star, fully equipped, near Sedan, Kans. Will sell cheap to close a copartnership. W. G. Kountz, Webb City, Mo.

DON'T BUY a light plant until you see Farmelectric, the Ford Parts Plant, and get prices and terms. Chas. S. Brown, state distributor, 21 N. Dewey, Oklahoma City, Okla.

THE WESTERMAN STUFFING Box does not pack with rubber rings and will give long, continuous service without attention. If your supply dealer hasn't them, send your order direct to The Dragon Mfg. Co., Marietta, Ohio.

FOR SALE—23 Star Drilling Machine in good condition and a complete set of tools; will sell very reasonable for cash. J. H. Brocksmith, 1856 Menard St., St. Louis, Mo.

SECOND-HAND PIPE—All kinds of used pipe. At present we have 10 miles of 8-inch oil line pipe. For particulars write Ohio Iron & Supply Co., 909 St. Johns Ave., Lima, Ohio.

FOR SALE

3—300 h. p. gas producers
3—350 h. p. gas engines
1—18x8½x14 belt driven compressor
Complete electric plants both D. C. and A. C.
All kinds of equipment bought and sold.
R. W. Russell, St. Mary's, W. Va.

FOR SALE — Complete artificial gas plant. Four-foot water gas set, capacity eight to ten thousand cubic feet per hour For particulars write The Upham Gas Co. of Texas, Mineral Wells, Tex.

USED GAS ENGINES—20, 50, 110 and 150 h. p. Bessemers; 35 h. p. Chicago Pneumatic; 65, 100 and 125 h. p. Millers; 401-ft. Chicago Gas-Driven Air Compressor, 100-lb. working pressure. Ask for our used machinery stock sheet. Landreth Machinery Co., Joplin, Mo.

PIPE BARGAINS—100,000 feet 2½-in. pipe, good threads and couplings, 9c f.o.b. Houston; 500,000 ft. other sizes at proportionate prices. Texas Supply Co., 2016 Loraine St., Houston, Tex.

FOR SALE—One No. 26 Star, only drilled one hole, fully equipped. Price $3,500. If interested, write or wire Harry Jorren, Bowling Green, Ky.

MILLER GAS ENGINE—Two-cylinder 85 h. p., practically new. A bargain for a quick sale. Address Jacob Wizenberg, Titusville, Pa.

DRAFTSMAN — Experienced in oil field equipment and capable of laying out and detailing tractors and power-transmission machinery. Good opening with live Ohio concern for the right man. State age, experience, salary desired and when available. Address Box A-23, care The Oil and Gas Journal, Tulsa, Okla.

FOR SALE, CHEAP — Standard rig, complete, Oil Well Supply Co. outfit. Address John Ewen, Alanreed, Tex.

FOR SALE—EQUIPMENT

WANTED—Acreage on good geology in Kansas or Oklahoma for drilling contract. Can give quick action. T. Gorges, 2127 West McCormick, Wichita, Kans.

FOR SALE — Turnbuckle rig, three boilers, engines, drilling and fishing tools. Will sell all or part, reasonable. Address Lock Box 18, Robinson, Ill.

FOR SALE—Gas, oil and steam engines, generators, motors, compressors and all kinds of second-hand equipment. Ask for our complete list. Acme Foundry & Machine Co., Coffeyville, Kans.

FOR SALE—Geological library; U. S. Geologic Survey Annual Reports, Monographs, Professional Papers, Bulletins and Water Supply Papers; about 700 volumes; $350 f.o.b. F. C. Greene, 1404 S. Cincinnati, Tulsa, Okla.

TANK BOLTS
SAME-DAY SHIPMENT

5/16x¾-inch, ⅜x¾-inch, ⅜x1-inch, ⅜x1¼-inch, ½x1-inch.
Write or wire for quotation.

SHEETS—All gauges and sizes; galvanized, blue-enamel. Also corrugated and composition roofing. Plates to ¼-inch.

STEEL MFG. & WAREHOUSE CO.
1447 Genesee St. Kansas City, Mo.

FOR SALE—De Laval separator, good condition, less than half price. Bryn-Nelson Refining Co., 1171 Arcade, St. Louis, Mo.

INCORPORATIONS

DELAWARE incorporator. Charters; fees small; forms. Chas. G. Guyer, 901 Orange St., Wilmington, Del.

WANTED

PRODUCING Royalties Wanted. Send full particulars and lowest cash price. H. M. Haverbeck, 50 Broad St., New York.

WANTED—Two or three good blocks of acreage in East Texas for drilling contracts. Submit full details and best proposition in first letter. If not interested all data will be returned. Box 804, El Dorado, Ark.

WANTED — New capital to develop gas properties; company now supplying large market at good price. Will sell half interest. E. O. Mullin, 416 Robinson Bldg., Tulsa, Okla.

EXPERIENCED oil jobber would like to hear from refiner or someone with capital to join in establishing bulk stations in Iowa. Address P. O. Box 227, Des Moines, Iowa.

STOREHOUSE OF INFORMATION

The Oil and Gas Journal contains statistics and unlimited information that is most valuable to the oil and gas man. Calls for back numbers are so numerous we are unable at all times to supply the demand—in fact, we can furnish very few back numbers. The issues missing from our files may be the ones you want. To make it possible for you, at all times, to refer to special articles or other information you desire, we have secured binders specially designed and durable and attractive in appearance that hold 26 numbers, or six months' issues. They are for sale at actual cost to us.

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BUSINESS OPPORTUNITY

To circularize the readers of The Oil and Gas Journal, once, it would cost more than $500. For a small sum you can reach these readers and place your proposition before them.

The classified rates are attractive. It costs but 25 cents the line for the first insertion and 15 cents the line for each additional insertion. Six words usually make a line. Cash with the order.

This useful table will help you to figure the cost of Classified Advertising in The Oil and Gas Journal. Keep it for reference:

	1 time	2 times	3 times	1 month
3 lines	$ .75	$1.20	$1.65	$2.10
4 lines	1.00	1.60	2.20	2.80
5 lines	1.25	2.00	2.75	3.50
6 lines	1.50	2.40	3.30	4.20
7 lines	1.75	2.80	3.85	4.90
8 lines	2.00	3.20	4.40	5.60
9 lines	2.25	3.60	4.95	6.30
10 lines	2.50	4.00	5.50	7.00

WANTED—An issue of securities to float in the East by reliable concern on commission. Address Brokers, U. S. Realty Bldg., Suite 512, New York.

COMMON LAW COMPANIES — Organize under Declaration of Trust; many advantages; legal everywhere; managed by trustees; limited liability. No State organization fees, reports or franchise tax. Meet or do business anywhere. Better than a corporation or partnership. Booklet free. Modern Organization Co., 304 South Broadway, Los Angeles, Calif.

CAPITAL RAISING — Compaigns planned, written, printed — everything complete ready to mail to investors. Twenty years' experience handling investment advertising. Clients all over America. Big, illustrated book, "How to Raise Capital" free if you submit detailed outline of your proposition. Ernest F. Gardner, L-511 Ridge Arcade, Kansas City, Mo.

INTERNATIONAL financing; want right now high-grade bond or stock issue. Box 471, Oklahoma City, Okla.

GEOLOGICAL ENGINEER, 12 years' experience examinations, reports, appraisals, management, oil properties, seeks a new engagement or proposition either with an oil company or with a banking or brokerage house interested in financing or specializing in oil. Principals only. Write Box A-12, The Oil and Gas Journal, Tulsa, Okla.

POSITION WANTED

ARE YOU EXPANDING?—Refinery construction and operation superintendent; have had 10 years' practical experience and now employed by a large refinery. Address Box A-22, care The Oil and Gas Journal, Tulsa, Okla.

PRODUCTION superintendent, with 28 years' experience in all branches of the producing and gasoline ends of the industry, desires to make connections with reliable organization. Address Box A-20, care The Oil and Gas Journal, Tulsa, Okla. Phone Osage 1930.

PIPE LINE superintendent, a man who has had several years' experience on both main lines and gathering systems, would like to connect with company that appreciates ability to handle both the office and field.

Thoroughly understand tank building, construction, operation and maintenance of pump stations and main lines.

Can install over and short system that is leader of such systems.

If you are in need of a good man for a responsible position, would like to exchange references. Am now employed, but will be open for position about first of the year. Address G. 509 W. Hillsboro St., El Dorado, Ark.

SUPERINTENDENT of tools and production and expert fisherman, desires connection with reliable oil company; years of practical experience. Can go anywhere. Box 110, The Oil and Gas Journal, Tulsa, Okla.

POSITION WANTED

The Journal has a wide circulation, going to all the oil fields, refineries, pipe line stations, gasoline plants, supply houses and business offices. It thoroughly covers the industry.

PRACTICAL oil man desires employment who has had success drilling, increasing old production, eliminating water, economy in operating expenses. Reference. Address Box A-11, care The Oil and Gas Journal, Tulsa, Okla.

CARBON BLACK superintendent desires connection with responsible party West. Experienced in construction plants and producing different grades of black. At present in charge of operation East. High-class references. Address Box A-3, care The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—PETS

PURE WHITE Collie pups. An ideal Christmas gift. Papers with each pup. Address Louise Spohrer, Box 255, Nevada, Mo.

LETTERHEADS—PRINTING

OIL FIELD LEGAL BLANKS—Leases, assignments, releases, township plats, gauge books, run tickets, time books, well records, etc. Request on your letterhead gets free catalogue. Olds Press, 215 East Third St., Tulsa, Okla.

TEXAS PRODUCTION RECORD IN NOVEMBER

AUSTIN, Tex., Dec. 20.—Over 16,393,000 bbls. of petroleum was gathered by pipe lines during November, according to reports compiled by the Railroad Commission of Texas. This was 1,000,000 bbls. above the preceding month, and at a rate of almost double the production of 1922, a 100,000,000-bbl. year. Production was slightly above the pipe line figures, as some oil is loaded directly in tank cars.

Navarro County, leading field of Texas, produced 7,258,0995 bbls., or more oil than all Texas fields produced during many months last year. Wichita County was second, with 2,523,803 bbls. and Limestone third, with 2,092,316 bbls.

Eastland County produced 266,406 bbls; Orange, 391,565 bbls.; Stephens County, 726,089 bbls.; Liberty County, 704,429 bbls.; Young County, 268,617 bbls.; Williamson County, 1,715 bbls.; Jefferson County, 26,725 bbls.; Brazoria County, 427,690 bbls.; Caldwell County, 341,116 bbls.; Comanche, 129,330 bbls.; Harris County, 466,087 bbls.; Marion County, 68,320 bbls.; Shackelford, 107,960 bbls.; Palo Pinto, 34,288 bbls.; Midland, 20,579 bbls.; Matagorda, 1,401 bbls.; Marion, 68,320 bbls.; Jack, 3,718 bbls.; Fort Bend, 25,994 bbls.; Coleman, 525 bbls.; Clay, 3,450 bbls.; Chambers, 2,385 bbls.; Brown, 11,762 bbls.; Bexar, 25,781 bbls.; and Atascosa, 127,598 bbls.

FRENCH IN OIL RESEARCH

The French Scientific Committee on Petrol Matters, of which Professor Sabatier is president, in view of the almost entire absence of any documentation concerning the study and handling of petrol, has organized the following sections: Hydrogenation and Catalyzing; Carbonization; Chemistry of Hydrocarbons; Alcohol and Combustibles from Vegetable Origin; and Gazogenes (the production of the necessary carburant or gas for power to be conveyed on the vehicle itself). The information obtained through those sections will be collected and classified by libraries and the information placed at the disposal of engineers in connection with work being carried out in France and also foreign countries.

PROPOSED LEASE FORM FOR RESTRICTED LANDS

Harry H. Smith, secretary of the Mid-Continent Oil & Gas Association, has returned from Washington, D. C., where he and the legal committee of the association have been in conference with Commissioner of Indian Affairs Charles F. Burke on the new proposed lease form for restricted Indian lands in the Osage. Mr. Smith said:

"The committee had a successful conference with the commissioner, extending over three days at which the new lease form for restricted allotted Indian lands proposed by the association was substantially agreed upon with a few modifications of the original draft. It will now be submitted to the Secretary of the Interior for approval and the committee hopes to see it finally promulgated and put in use in January. The instrument should prove to be valuable, the revision beneficial alike to Indians and operators, fore existing upon the removal of restrictions."

clearing up many uncertainties hereto-

OIL PROSPECTS IN COLOMBIA

In Colombia, as in the most prominent oil producing countries of the world, says Oil Engineering and Finance, a whole series of deposits, sometime passing through different geological horizons, contain oil. This powerful vertical occurrence is equal by horizontal extension of the oil regions. In no instance have we to do with single oil horizons, or with locally limited centers so far as the general petroliferous character of the oil regions in Colombia are concerned. Valuable fields will be found at places where the original formation of oil has found particularly suitable circumstances. These are the former seashores and the banks of meozotic or tertiary inland lakes, estuaries, inlets and lagoons. It is impossible to determine at present their exact boundary lines. But there is sufficient evidence in the better known parts of Colombia to give a few general indications.

PETROLEUM IN CHILE

Interest in the petroleum possibilities of southern Chile stimulated since 1922 by drilling operations in the adjoining territory of Santa Cruz, Argentina. Two wells were put down, one near the port of Santa Cruz by the Anglo-Persian interests and one near the port of San Julian by independent American interests, but the operations apparently have been without results. Contracts for oil exploration rights are for a period of four years, provide for a royalty of 8 per cent in the event of oil production, and specify that the exploration rights acquired may be transferred. Government land in that district now held under petroleum patents totals 135,931 acres. Patents for petroleum and asphalt cover 1,358 acres; for asphalt, 617 acres; and asphalt and lignite, 741 acres.

RUMANIA LIFTS OIL BAN

The Rumanian Cabinet has approved a decree restoring limited freedom of trade in the petroleum industry under governmental supervision, so as to insure priority for domestic users. The exportation of crude oil is still prohibited, but refined products may be shipped abroad under an export tax of 80 lei for 100 kilograms. Domestic prices must not exceed those on the world market.

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Pure Spring Water
Distilled
Phone Osage 700 Tulsa, Okla.

Place your order for Ice with the
TULSA ICE CO.
Phone 12, 4 N. Detroit, Tulsa, Okla.

ITALY'S OIL NEEDS

Italy's annual requirements of oil and liquid hydrocarbons, says Consul Leon Dominian, Rome, amount at present to 400,000 tons, of which 119,000 tons are consumed by the Government for army and navy purposes and for the State railroads. The Italian consumption is classified as follows:

Products	Total Consumption Tons	Government Consumption Tons
Benzine	110,000	10,000
Petroleum	100,000	4,000
Lubricants	60,000	25,000
Residual oils	130,000	80,000

Recent yearly Italian production does not quite attain 5,000 tons. Italy will remain an importing country of liquid hydrocarbons for some years at least. Considerable attention, however, is being paid to the development of national oil resources.

GASSERS AT BRISTOW

There are now more than a dozen gas wells ranging from 8,000,000 to 20,000,000 feet in the North Bristow, Okla. Field, all of which are producing from the Bartlesville sand. This is probably the largest gas field in Creek County. One of the largest wells completed in this field was Oklahoma Producing & Refining Co.'s No. 1 Ida Washington which had an initial production of around 65,000,000 feet of gas.

OKLAHOMA FIELDS

(Continued from Page 107)

Co. is moving in timbers to rig up a rotary for its No. 1 Holman, C SW NW SE, Section 24-2s-3w.

A sand showing oil was topped at 2,417 feet in the Skelly Oil Co.'s No. 2 Sparks, C NE NE SW, Section 30-2s-2w, and the same company's No. 1 Simpson, C NE NE NW, Section 23-2s-3w, was fishing for tools which were run to clean out a bridge after drilling 2 feet in an oil sand topped at 2,040 feet.

The Amster Oil Co.'s No. 1 Jefferson, C NE NE SE, Section 25-2s-3w, was producing 500 bbls. from sand at 2,340-71 feet. The Patsy Oil Co. was drilling at 100 feet in its No. 9 Palmer, C SE SE SE, Section 31-2s-2w, and Simpson & Fell at 200 feet in their No. 1 McCrory, C SW NE NW, Section 34-1s-3w. The Humble Oil & Refining Co. was drilling at 633 feet in red beds in its No. 1 Radcliffe, C SE SE SW, Section 20-1s-3w.

In the Hewitt district, the Wolverine Oil Co. had a 157-bbl. producer in its No. 29 Dillard, CEL SE SW, Section 22-4s-2w, the broken sand being found from 2,321 to 2,759 feet. The Sure Oil Corp. also had a good producer in its No. 11 Simpson-Voorhees, C SW NW SE, Section 9-4s-2w, in the northwestern part of the field. It was good for 300 bbls. on the swab and was still drilling in the sand at 2,227 feet which was topped at 2,170 feet. The same company's No. 1 Lowery-Walker, C SE SW NE, in the same section, was drilling in shale at 2,150 feet.

A deep test which was in black shale at 3,070 feet, is being drilled by the Wolverine Oil Co. in its No. 71 Dillard, NW cor. NW NE, Section 22-4s-2w. It is an old well, and is located about a mile northeast of the Baker-Strawn 3,525-foot production.

The deepest drilling well in the Hewitt Field at the present time is the Rockland Oil Co.'s No. 7 Dillard, in the NE cor. SW NW, Section 22-4s-2w, which offsets the Baker-Strawn well. It was at 3,930 feet at last reports, with 1,226 feet of open 6-inch hole, having set the casing at 2,704 feet. It was drilling in lime.

The Magnolia Petroleum Co.'s No. 11 Dillard, NW SW NW, Section 22-4s-2w, another offset to the Baker-Strawn well, was fishing for the 4-inch liner at 3,285 feet. The Skelly Oil Co.'s No. 10 Noble, SW NW NW, same section, is being plugged back to the 2,600-30 and 2,645-80-foot sands in an effort to make it a producer at those levels after 500 feet of casing was lost in the hole. It was an old producer at those depths before it was drilled deeper, making 100 bbls.

In Lincoln County, the Union Petroleum & Supply Co. had a rig in place for its No. 1 Townsite, C NW NE NW, Section 12-14-6, and J. A. Hull was spudding his No. 1 Hubbell, CSL SE NW NW, in the same section.

In Other Counties

Pawnee County was the scene of a little activity and reported three producers. A 45-bbl. natural well was brought in by J. B. Grieves in his No. 1-A Hart, SW cor. Section 30-21-8, which was good for that amount from the Tucker sand at 2,580-92 feet. Waxler & Preisler treated their No. 2 Bijeck, NE cor. SE SE, Section 20-21-7, to a 140-quart shot in sand at 2,511-35 feet after plugging back from 3,170 feet, and a 40-bbl. producer resulted.

The Carter Oil Co.'s No. 2 Truesdale, NE cor. NW NE, Section 17-20-6, was making both oil and water after a 5-quart shot in sand at 3,047-54 feet, the oil production amounting to 20 bbls. and the water to 15.

The Watchorn Oil & Gas Co. was drilling at 1,375 feet in its No. 3 White, CEL NE SE, Section 17-20-6, and a rig was on the ground for the Prairie Oil & Gas Co.'s No. 5 Donahue, SW cor. Section 15-20-6. Reese and others were rigging up their No. 3, CSL NE NE SE, Section 4-20-7, and the Vic Oil Co. had a rig in place and was moving in tools for its No. 1 Townsite, SE cor. NE NW, same section.

In Northwestern Stephens County, a 2,000,000-foot gasser was brought in by the Glennhoma Oil Co. in its No. 1 Wadkins, SW cor. SE SE, Section 14-1n-9w, from a broken sand at 1,500-2,081 feet. The 6-inch casing was set at 2,081 feet. Walters & McGovern had a rig built for their No. 1 Brown, SE cor. Section 23-1n-9w, and the C. & O. Oil Co. were cleaning out No. 4 Ridge, NW cor. Section 30-1n-8w, an old well, at 2,004 feet, to drill deeper.

Southwest of Duncan, the Magnolia Oil Co.'s No. 13 School Land, CWL SW SW NE, Section 33-1s-8w, was flowing by heads at the rate of 225 bbls. daily from sand at 2,010-15 feet, with the 5-inch casing set on top of the sand.

Okmulgee County

Some of the significant operations in Okmulgee County were as follows: The Troy Oil Co. had a rig in place for its No. 12 Grayson, NE cor. Section 2-15-11. John Botts was spudding his No. 3 Hawkins, SE cor. SW SE, Section 32-15-11, and Misner was also spudding No. 3 Gooden, SW cor. SE SE, same section. Frazier's No. 1 Shepard, NE cor. SE SW, Section 14-15-12, was a rig, and the Enfisco Oil Co.'s No. 1 Grayson, CWL SW NE NW, Section 3-15-11, was drilling at 1,100 feet. The Wolford Oil Co.'s No. 2 Grayson, NW cor. NE NW, Section 3-15-11, was also drilling at 1,050 feet. The Texolean Oil Co. was drilling at 500 feet in its No. 2 Williams, CSL SW NW NE, Section 14-15-12, and Bob Galer at 510 feet in his No. 1 Jones, NW cor. SE, Section 36-15-12.

The Gladys Belle Oil Co. will drill deeper in its No. 3 Mitchell, SW cor. NW NW, Section 6-12-12, which made 560 bbls. natural the first 24 hours, from sand at 2,422-35 feet, 390 bbls. the second 24 hours, and 190 bbls. the third day.

Eagle Picher's No. 4 Wolf, NW cor. SW NW, Section 34-12-12, was good for 500,000 feet of gas from sand at 1,432-1,523 feet.

Jack Grundish abandoned his No. 3 Hawkins, CWL SW, Section 5-11-12, as dry at 2,805 feet.

In McIntosh County, the Wooster Oil Co. had a machine in place for its No. 1 McIntosh, C NW NE, Section 20-11-14.

In Okfuskee County, the Atlantic Oil Producing Co.'s No. 1 Jackson, NW cor. SW, Section 35-11-11, which was good for 380 bbls. the first 24 hours, from sand at 2,500-2,508 feet, was at last reports making 330 bbls. through 30 feet of cavings. The Sinclair Oil & Gas Co.'s No. 1 Alexander, NE cor. SE, Section 34-11-11, had tools in place.

Hughes County

In Hughes County, rigs were in place for the Kingwood Oil Co.'s No. 1 Davis, in the SW SW, Section 3-9-9; the Papoose Oil Co.'s No. 1 Alexander, in the SW SE, Section 4-9-9; the Gilcrease Oil Co.'s No. 1 Simons, in the NE NW, Section 9-9-9; the Papoose Oil Co.'s No. 1 Nill, in the NW NE, same section; the Gladys Belle Oil Co.'s No. 1 Bruner, in the SW SE, Section 17-9-9; the Margay Oil Co.'s No. 1 Bruner, in the SE SW SW, same section; the Gilcrease Oil Co.'s No. 1 Simons, in the NE NW, Section 20-9-9; W. C. Newman's No. 1 Pike, in the SE SE, Section 31-8-12, and the Lewis Oil Co.'s No. 1 Long, in the NW NE NW, Section 4-7-8.

Location was made for the Turman Oil Co.'s No. 1 Davis, in the SW SW, Section 15-9-9. The Phillips Petroleum Co.'s No. 1 Bruner, in the NE SE, Section 23-9-9, was also a location, as was the Tidal-Osage Oil Co.'s No. 2 Holt, in the SE NW NE, Section 9-9-11.

The Mid-Kansas Oil & Gas Co.'s No. 2 Bruner, in the SW NE NE, Section 9-9-11, was shut down at 2,948 feet, and the Tidal-Osage Oil Co.'s No. 1 Baker, in the SE SW SE, Section 4-9-11, was drilling at 1,130 feet. The Flesher Petroleum Co. was underreaming the 6-inch at 3,312 feet in its No. 1 Smith, in the NW NE NW, Section 8-9-12, and the Oklavania Oil Co. had a cellar dug for its No. 1 Smith, in the SW NE, Section 17-9-9.

The Gilcrease Oil Co.'s No. 1 Bruner, in the NW NE, Section 20-9-9, was shut down at 3,050 feet after making 120 bbls. production. After getting a hole full of water from sand at 4,240-53 feet, the Independent Oil & Gas Co.'s No. 1 Alexander, in the NE NW, Section 22-8-10, was abandoned as dry.

The Humble Oil & Refining Co. located its No. 1 Hardage in the SW NE, Section 2-6-8. The Middle States Oil Co. was drilling its No. 1 in the NW NW, Section 13-6-11, at 3,500 feet, after getting 1,500,000 feet of gas from sand at 3,331-53 feet.

Oklahoma's Deepest

Oklahoma's deepest drilling well, the Kingwood Oil Co.'s No. 1 Barnett, in the NW NE SW, Section 7-7-10, was still going ahead at 5,127 feet. A show of gas was found at 2,360-2,400 feet in the Paraffin Oil Co.'s No. 1 Battles, in the NE SE NE, Section 13-7-12. W. R. Ramsey was drilling ahead in his No. 1 Dindy, in the NW NW, Section 6-7-8, south of Wewoka, at 3,586 feet, and the Arkansas Natural Gas Co.'s No. 1 Porter, in the SE SW SW, Section 5-7-8, was also drilling at 550 feet.

A McClain County test was being drilled at 1,330 feet by the Day Oil Co. in its No. 1, SE cor. NW NE NE, Section 9-5n-3w.

The Kimbley Oil & Gas Co. was running the 5-inch at 3,350 feet in its Coal County well, in the SE SE, Section 33-5-11. The Matthews Petroleum Co.'s No. 1, in the C SW SW, Section 4-5-11, was spudded and shut down.

N. W. PENNA. PRODUCERS

BRADFORD, Pa., Dec. 24. — The Northwestern Pensylvania Oil Producers Association has elected the following officers: President, William J. Healey; vice presidents, John C. Looker and E. C. Emery; treasurer, O. F. Thompson; secretary, Don T. Andrus; assistant secretary, F. E. Earnst.

Late Fields

WYOMING

CASPER, Wyo., Dec. 25.—The Utah Oil & Refining Co. appears to have obtained a lemon in the Hughes tract in the Lost Soldier Field, bought by this firm last year. It consists of the SW Section of 2-26-90 and well No. 1-B found water in the Dakota sand at 2,594 feet and No. 2-B was abandoned at 1,711 feet. This Hughes tract produced a gusher last year that drew considerable attention to the Lost Soldier Field as it started off around 8,000 bbls., but proved very short lived.

The Producers & Refiners Corp. is active in the wildcat near Thornton where the hole is 2,350 feet and in the 4-inch. This location is about 40 miles northwest of the Osage Field in Weston County, on the slope of the Black Hills uplift. At Garland, in Park County, close to the Wyoming-Montana line the same firm is down to 2,589 feet on Section 30-56-97 in a wildcat and the Bell Springs well reported as having a showing of oil about two weeks ago, is shut down at 1,910 feet with boiler trouble. The Enos Creek well, located west of the Buffalo Basin Field is drilling after experiencing considerable trouble, at 3,482 feet and is now below the gas sand and will test the lower sands of the Frontier formations. At Simpson Ridge, the Producers & Refiners Corp. is fishing in one well and has shut down the other hole there until better weather conditions prevail.

A completion is expected shortly in the Baxter Basin Field in Sweetwater County. The Midwest, on Section 11-17-104, is in a sand at 2,865 feet and the operators look for a gas well to show soon.

Dry Hole in Salt Creek

The southwest end of Salt Creek was given a black eye the past week when the Mutual Oil Co. drilled a dry hole on the NE Section 24-39-79, where the first well on this quarter came in a 200-bbl.

Fig. 1021 "Ferrenewo" Iron Body Globe Valve

Fig. 73 "Renewo" Bronze Globe Valve

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"Ferrenewo and Renewo" Valves

Fig. 863 "Renewo" Bronze Horizontal Check Valve

Fig. 898 "Ferrenewo" Iron Body Horizontal Check Valve

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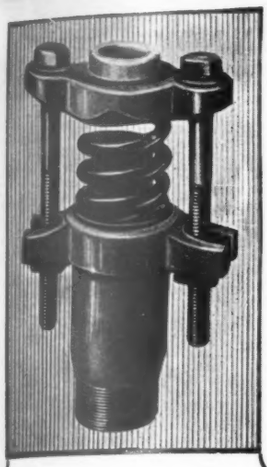

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producer. The Kinney Coastal well on this section is rated at 5 bbls. only.

This shows clearly that the faulted conditions in the southwest corner of the field demand great care in the location of wells and unless the operators have competent geological assistance in making their locations, they are almost certain to drill a number of dusters before obtain-

Mosher well No. 2, east of the Kinney well No. 2 on the east of the Kinney Coastal and Mutual section has also been abandoned as worthless.

pears to be badly faulted as the sands are not running regular and do not come in where expected according to surface measurements.

The Ohio Oil Co. completed two wells in the Rock River Field in Albany County the past week, one on Section 3-19-78 and the other on Section 11-19-78, the first well was found good for 50 bbls. and the second well is making about 300 bbls. The sand in the first hole was cut at 3,245 feet and in the second well at 3,270 feet.

Pipe Line Runs

A slight falling off in pipe line runs was noticeable over the past week. Salt Creek dropped due to cold weather effect on the crude, but Big Muddy showed a sudden increase through shipments of several tanks that had been held in storage for some time past.

Salt Creek	113,165
Teapot	4,430
Big Muddy	7,000
Grass Creek	3,260
Elk Basin	1,500
Notches	125
Greybull	140
Rock River	3,375
Lance Creek	2,800
Poison Spider	250
Osage	645
Hamilton Dome	525
Lander	480
Pilot Butte	85
Lost Soldier	5,775
Ferris	165
Cat Creek	4,650
Sunburst	250
Miscellaneous	525
Total	143,195

MONTANA

The Whaley Oil Co. has abandoned its well on Section 29-14-26 in Fergus County. This wildcat was expected to open up a second Cat Creek Field on the Flatwillow Dome near Winnett. It has been drilled to about 2,000 feet. The Golden West Oil Co. has abandoned its Black Butte wildcat, Section 25-17-22, at 3,000 feet. The Mid-Northern Oil Co. (Midwest) has abandoned No. 3 on Section 1-15-28 on the western extension of Cat Creek Field and the California Oil Co., (Standard of California) has abandoned No. 3 on Section 12-15-28, in the same area.

NEW MEXICO

The Midwest well No. 5 on the Hogback structure in New Mexico, is making around 1,300 bbls. daily from 760 feet and the expected decline has not showed as yet. This well was completed several weeks ago and has been producing steadily, it is located on Section 19-29-16. Also the Midwest has its new wildcat on the San Mateo down to 218 feet on Section 14-14-8 in McKinley County.

The Midwest wildcat at Ambrosia Lake in New Mexico, Section 13-25-10, has at last recovered tools and is drilling again.

UTAH

The Producers & Refiners Corp. has started a wildcat in the northeast corner of Utah, on what is known as the Clay Basin Dome, Section 23-3-104.

J. E. O'NEIL'S VIEW

James E. O'Neil, former president of the Prairie Oil & Gas Co., returned from a visit to Europe, took exception to the statement attributed to David White, geologist of the United States Geological Survey, that the United States would be importing oil within five years because of the depletion of crude oil here.

NORTH TEXAS GASOLINE SHOWING IMPROVEMENT

FORT WORTH, Tex., Dec. 24.—New Navy gasoline in North Texas continues to show an improvement in price, quotations today ranging from 7½ to 7¾ cents per gallon. There is still very little New Navy gasoline available in North Texas for prompt shipment, most of the refiners being sold up until after the first of the year on orders taken some time ago at somewhat lower levels than today's spot market. Stocks are comparatively low and very few new sales are being made at present.

The 64-66 gasoline is generally quoted at 9½ cents with none available as practically all of the plants making this grade have sufficient orders on hand to keep them busy for the next week or 10 days. It is understood one large exported was in the market the latter part of last week for 64-66 but had little success in securing any quantity of this material for prompt shipment.

The kerosene market remains firm at 4½ to 4¾. Demand continues good and the supply somewhat scarce with little available for shipment on current orders.

The various grades of natural gasoline have retained the advantage in price they secured last week, Grade A being scarce at 6 to 6¼. Some of the larger interests have practically cleaned the market of all distress stocks, and with a fairly good spot demand, the natural gasoline refiners are in considerably better shape than they have been for some weeks past.

Distillate is scarce at 3¼. Gas oil remains strong at 2½ cents, although the demand at present appears to be a little below normal for this season. However, due to the better prices obtained for kerosene there is still a comparatively small amount of gas oil being manufactured in North Texas.

The fuel oil market continues to hold its own, prices ranging from 80 to 85 cents with a fairly good demand. Stocks are normal and it is doubtful if any large quantity of fuel oil could be purchased for immediate shipment even at the advanced prices.

GASOLINES AND FUEL OIL PRICES HIGHER

(Continued from Page 22)

the fuel oil market situation is unchanged. Refiners boosted their prices that amount and refused to give concessions. Refiners point out that a 25-cent advance in Oklahoma crudes would advance their marginal contract price basis to 75 cents. They are keeping their spot price above that figure. The statistical position of this product as shown by the weekly report of the Western Petroleum Refiners Association is strong and it now appears that refiners in this Group will be able to keep their spot price substantially higher than the marginal contract basis. The bottom price on gas oil now is 2½ cents. There is no apparent change in the demand for this product.

Kerosene and Distillates

Although several refiners have considerable stocks of kerosene, prices are generally firm with only a fair movement. They are buyers in the market who would take substantial quantities at prices slightly under present quotations. Refiners report a good movement in their regular trade with jobbers. The distillate movement continues to be disappointing to many refiners. The demand is not active enough to bring the product into prominence in the open market. Prices are unchanged.

Neutrals

Higher prices for neutrals in Pennsylvania and other points in the East have not been reflected in Group 3. The demand is excellent, however, and it is freely predicted that a substantial advance in crude prices will bring higher price for neutrals. Cosden & Co. is understood to be sold up for 45 days on practically all grades. Other concerns report an exceptionally strong demand during the past week for bright stocks.

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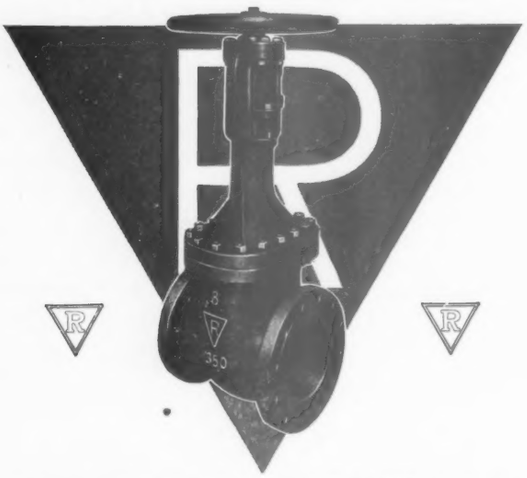

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CALIFORNIA OUTPUT IN NOVEMBER DECREASED 46,192 BARRELS DAILY

According to figures collected by the American Petroleum Institute, Pacific Coast office, the total production of crude oil in California for November, amounted to 22,397,848 barrels, an average of 746,595 barrels per day. This is a decrease of 46,192 barrels per day under October production.

Stocks increased during the month 653,795 barrels. The total stocks at the end of the month were 89,003,345 barrels. The total stock increase for 1923, up to November 30, was 27,818,417 barrels. Indicated consumption for November was 21,744,053 barrels, an average of 724,802 barrels per day. This is an increase of 24,045 barrels per day over October consumption.

One hundred and eleven wells were completed during the month with an initial daily production of 99,797 barrels, compared with 99 wells completed during October with an initial daily production of 127,758 barrels.

PRODUCTION

District—	Barrels Per Mo.	Daily Average Nov., '23	Oct., '23	Nov., '22
Kern River	437,970	14,599	15,019	
McKittrick	179,631	5,987	6,243	
Midway-Sunset	2,166,087	72,203	74,140	
Elk Hills	640,894	21,363	23,064	
Lost Hills-Belridge	110,137	3,671	3,526	
Coalinga	513,179	17,106	13,761	
Wheeler Ridge	17,298	577	456	
Watsonville	1,725	57	57	
Santa Maria	204,126	6,804	8,008	
Summerland	4,365	146	146	
Ventura-Newhall	292,031	9,734	9,835	
Los Angeles-Salt Lake	100,581	3,352	3,267	
Whittier	50,996	1,700	1,659	
Fullerton	312,058	10,402	10,654	
Coyote	59,576	1,986	1,995	
Santa Fe Springs	6,419,185	213,973	258,209	
Montebello	323,849	10,795	10,366	
Richfield	459,376	15,313	14,988	
Huntington Beach	2,200,267	73,342	78,837	
Long Beach	7,254,009	241,800	244,527	
Torrance (Redondo)	610,031	20,334	12,722	
Compton	40,477	1,348	1,345	
Total	22,397,848	746,595	792,787	
Total October	24,576,400	792,787		
Decrease	2,178,552	46,192		

FIELD, REFINERY, PIPE LINE AND TANK FARM STOCKS OF CRUDE, RESIDUUM AND TOPS

	Nov. 30, 1923	Oct. 31, 1923	Nov. Stock Increases	Nov. 30, 1922
Heavy crude, heavier than 20° A. P. I. including residuum	42,563,341	42,585,664	*22,323	
Refinable crude, 20° A. P. I., and lighter	34,269,727	33,659,232	610,459	
Tops	12,170,277	12,104,654	65,623	
Total	89,003,345	88,349,550	653,795	
		Nov. 30, '23	Oct. 31, '23	Nov. 30, '22
Total quantity of above products held at refineries		28,657,793	28,222,460	
Total quantity of above products held in fields, pipe lines and tank farms		60,345,552	60,127,090	
Total stocks, as above		89,003,345	88,349,550	

*Decrease. †Includes tops.

DEVELOPMENT

District—	New Rigs Up	Active Drg.	Comp.	Daily Init. Output	Active Prod.
Kern River	1	2	...	.....	1,771
McKittrick	..	5	...	.....	294
Midway-Sunset	7	43	12	2,314	2,079
Elk Hills	..	7	1	400	88
Lost Hills-Belridge	..	6	1	10	234
Coalinga	1	6	...	.....	701
Wheeler Ridge	..	8	...	.....	6
Watsonville	..	...	...	.....	6
Santa Maria	..	2	...	.....	294
Summerland	..	...	...	.....	135
Ventura-Newhall	5	33	1	225	542
Los Angeles-Salt Lake	..	...	...	.....	635
Whittier	..	...	...	.....	174
Fullerton	..	4	...	.....	394
Coyote	..	3	1	212	89
Santa Fe Springs	7	106	43	46,079	277
Montebello	..	6	...	.....	121
Richfield	..	8	1	800	176
Huntington Beach	1	66	9	2,480	223
Long Beach	13	161	19	23,420	297
Torrance	56	110	23	23,857	66
Compton	1	12	...	.....	1
Average for year 1920	77	403	49	14,125	9,299
Miscellaneous drilling	7	59	...	.....	...
November	99	647	111	99,797	8,590
October	94	745	99	127,758	8,617
Decrease	*5	98	*12	27,961	27
Average for year 1922	115	605	67	43,700	9,410
Average for year 1921	90	536	57	15,631	9,425
Average for year 1920	77	403	49	14,125	9,299
Average for year 1919	58	340	47	9,572	8,774
Average for year 1918	50	362	50	10,577	8,210

*Increase.

OIL IN NEW ZEALAND IN SMALL QUANTITIES

The oil prospects of New Zealand are seldom referred to, but it seems that they are by no means negligible. As a matter of fact, some oil has been produced for a considerable number of years, but not in remunerative quantities. The annual reports of the New Zealand Mines Department show that the search for oil is more or less continuous, even if it is not very vigorously pursued. Petroleum has been discovered in small quantities in several places and considerable boring has taken place at various times at New Plymouth (North Island), Kotuku (South Island), Dannevrike and Gisborne (North Island).

New Plymouth has so far yielded the best flow of oil, but even here expectations have not been realized. Several companies have erected derricks, and probably as much as £150,000 has been spent in drilling, which, however, is not a large sum compared to that spent in many other fields before complete success was reached. In 1906 the Taranaki Oil Wells, Ltd., obtained at New New Plymouth a yield of 250,000 gallons from a well, but operations were stopped owing to the failure of the well casing after a bonus of £10,000 had been obtained from the New Zeland Government for the production of the first 100,000 gallons of crude oil in the country, and a further bonus of £2,500 for the production of the first 250,000 gallons of refined mineral oil. The best flow of oil was obtained at about 2,500 feet.

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Colombia Concession Reported Secured by Oil Fields Corp.

EL DORADO, Ark., Dec. 24.—Announcement has been made of an oil concession of 13,000,000 acres, in Colombia, South America, signed, sealed and contracted to the Oil Fields Corporation of El Dorado, Ark. It adjoins the celebrated Maracaibo area of Venezuela and extends along the sea coast 450 miles. It was closed, after long negotiation, by William Francis Wilson, an expert formerly associated with the Standard Oil and Dutch-Shell. Gordon Ingalls, president of the Oil Field Corporation, states that Mr. Wilson will sail for London the third week in December to confer with important British interests.

The concession represents two tracts, and runs for 50 years and as long thereafter as minerals are produced in commercial quantities. It is the second largest oil concession ever granted, the largest being that recently granted the Sinclair Oil Co. in Portuguese East Africa, with a coast line of over 600 miles.

The larger tract comprises 7,410,000 square acres and fronts on the Atlantic Coast from Santa Marta eastward to the Peninsula of La Goajira on the Gulf of Venezuela. In addition is another concession covering 4,940,000 acres on the Gulf of Darien, near the eastern border of the Republic of Panama. The two properties were granted by the Colombian Government many years ago to a war hero.

Recently, the Colombian Government granted to the "Andean National Corp." (a Canadian concern said to be a subsidiary of the Imperial Oil Co., which is a branch of the Standard) a concession to lay a pipe line nearly 600 miles in length, following the general course of the Magdalena River to the ocean. This pipe line will be a common carrier and will traverse nearly all the known petroliferous areas in Colombia. The government has stipulated that the pipe line corporation must build branch lines to any district that comes into production, provided said district is within a reasonable distance of the main pipe line. The Colombian Congress has fixed a maximum tariff for the transport of oil.

Officers of the pipe line state their corporation is ready to loan money to oil producers along the pipe line right-of-way who have prospects of petroleum. Such loans will be subject to favorable reports by the company's geologists. The estimated cost of the main pipe line and all accessories is $35,000,000.

Upon Mr. Wilson's return from England, he will be accompanied by O. L. Brace, geologist for the Oil Fields Corp., according to Mr. Ingalls.

BURBANK'S OUTPUT

A total of 50,468,774 barrels of oil has been taken from the Burbank oil field on the Osage Indian Reservation in Oklahoma up to October 1, 1923, according to the latest figures compiled by the Bureau of Indian Affairs of the Department of the Interior.

This field, the richest in the world, has been in operation since 1918. The mineral rights, belonging entirely to the tribe of Osage Indians, have yielded these Indians in royalties and bonus the tremendous sum of $54,744,000 during this period of six years, $37,856,000, of which has been paid by oil operators as bonuses for leases and $16,888,000 which has been paid in royalties from the oil produced.

The highest bonus paid for the privilege of drilling on any single quarter of land was $1,600,000 and that the oil operator made no mistake in paying this immense sum is illustrated by the fact that up to October 1 of this year, wells on this quarter of land alone have produced 1,834,082 barrels of oil. The distribution of the immense income from the Burbank Field is made every month pro rata to the members of the Osage Indian tribe.

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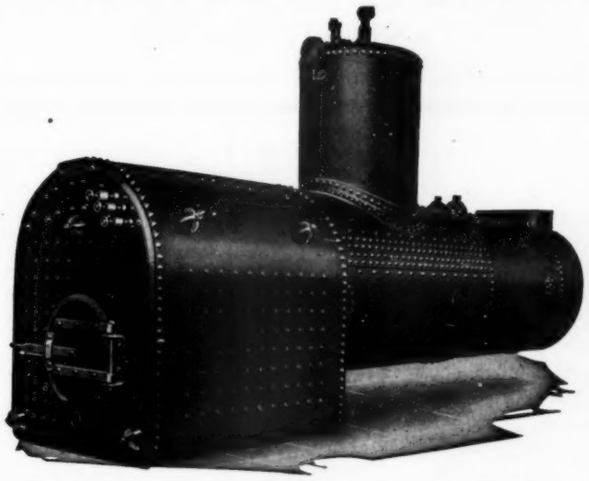

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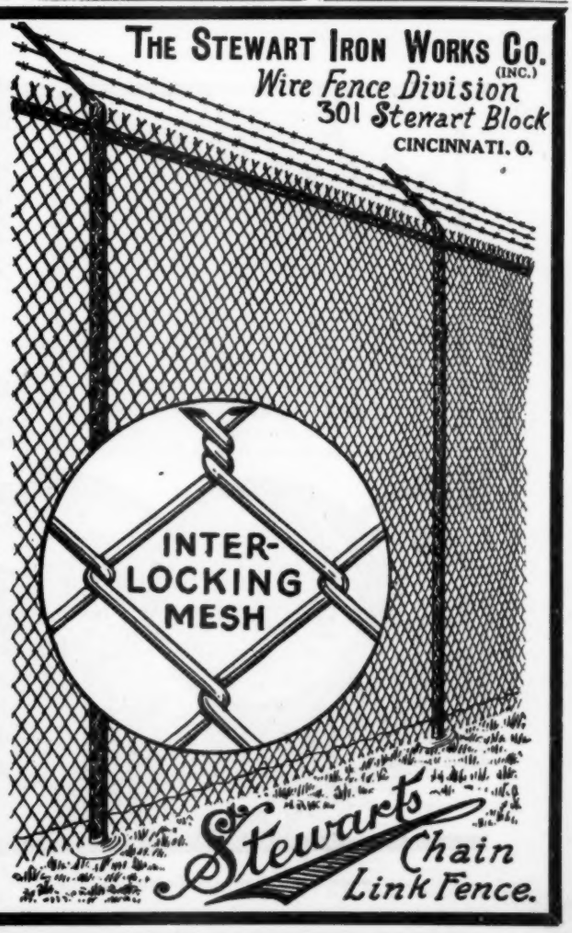

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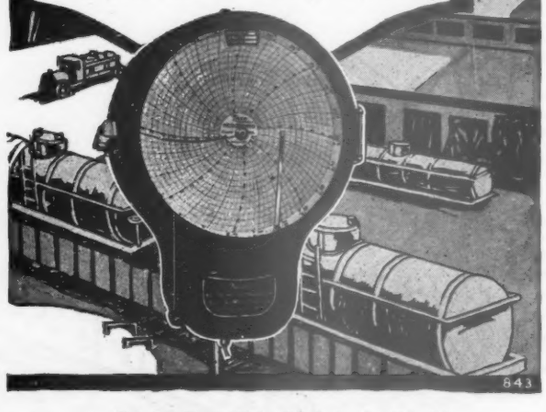

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Catalog Part 1700—Oil Industry Special

WORKERS PARTNERS IN INDIANA STANDARD

(Continued from Page 99)

(e) Failure to wear safety goggles that have been provided.

(f) Smoking or carrying matches other than safety matches or having open fires except within prescribed limits where such practice is authorized.

3. Failure to immediately report accidents or personal injuries to the delegated authority wherever possible.

4. Insubordination (including refusal or failure to perform work assigned) or use of profane or abusive language toward fellow employes or officials of the company.

5. Absence from duty without notice to and permission from superintendent or foreman except in case of sickness or cause beyond his control of a character that prevents his giving notice.

6. Harboring a disease that on account of his own carelessness will endanger fellow employes.

7. The possession of or exercise by any employe of any habits, demeanor, characteristics, action or course of action that make them objectionable to other employes and the management or that make his retention in the service disruptive of a spirit of harmony therein or would cause other employes to leave the service.

8. Changing working place without orders or prowling around the works away from assigned place.

9. Falsifying or refusing to give testimony when accidents are being investigated or for false statements when application and physical examination is being made.

10. Neglect or carelessness resulting in damage to railroad equipment or neglect of car dropper to properly set brakes on railroad cars in his charge.

11. Wilful neglect in care or use of the company's property.

12. Obtaining material at storehouse or other assigned places on fraudulent orders.

13. Sleeping while on duty.

14. Offering or receiving money or other valuable consideration in exchange for a job, better working place or any change in working conditions.

15. Introduction, possession or use on the property of the company of intoxicating liquors.

16. Habitual use of habit forming drugs or their introduction or possession on the property of the company.

Must Be Given Notice

These reasons are conspicuously posted in the plants at various points for the information of employes. If suspension or dismissal for any reason is desired the employe concerned must first be given a written notice by his foreman and a copy of the notice sent to the employment bureau for filing. The employe must then repeat the offence before he can be suspended or dismissed.

In actual practice as the rule has worked out, it is customary in many instances to give a man written notice that a repetition of his offense will mean suspension or discharge, even though he might have been indefinitely suspended or dismissed under one of the 16 rules enumerated above. This has worked out very well and has shown many foremen that their men are generally anxious to correct their faults, if they know what they are.

This entire plan as outlined can be amended by petitions signed or concurred in by two-thirds of the employes' representatives and the director of industrial relations and the approval of the board of directors of the company. There is nothing in the plan that abridges or conflicts with the right of the employe to belong to any legitimate society, fraternity, labor union or other organization. The cost of the operation of the plan is borne by the company. An amendment adopted four years ago bars from office of representative any employe who is not an American citizen.

Operated separately and yet in a sense a part of the plan, the Standard Oil Co. of Indiana has perfected an annuities system for employes. An employe who has given his best years or who has become incapacitated in service is assured an income for the balance of his life. In no case is this annuity less than $300 a year and it may be as high as 75 per cent of the average yearly wage preceding his retirement. The company has found that this plan gives the employe a sense of security as to his future reflected in more efficient service during his employment. Last year at the refi-

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eries there were 88 employes on the annuity role who were paid $72,559.30. In all departments the benefits and annuities last year totaled $257,524.20. Since the annuity plan was made effective $800,000 has been paid out by the company.

Another feature indicating the company's interest in its employes is the stock purchase plan, whereby employes may purchase stock up to 20 per cent of their salaries. At the present time more than 10,000 employes are stockholders and now own practically 3 per cent of all outstanding stock. The plan was inaugurated nearly three years ago and has a little more than two years to run. It is believed that by the end of the five-year period the company employes will be the largest group of stockholders collectively in the company.

WORLD'S MOTORS 17,000,000

Seventeen million automobiles—passenger cars and trucks—will be in operation in the world by the end of this year, according to a preliminary estimate of the Automobile Division of the United States Department of Commerce. The total of 17,000,000 cars and trucks in operation in the entire world represents an increase of about 17 per cent over a year ago. About 14,000,000, or over 4-5 of the total, are in use in this country, which lists approximately one car or one truck to every eight persons. In the world, the proportion is one to every 112.

JOHN D. IN FLORIDA

John D. Rockefeller has arrived at Ormond Beach, Fla., for the winter.

CONGRATULATIONS!

W. S. Fitzpatrick

The marriage of W. S. Fitzpatrick, chairman of the board of directors of the Prairie Oil & Gas Co., of Independence, Kans., to Mrs. Loren Stevens Dow, of Pittsburgh, Pa., came as a surprise to the many friends of the popular Prairie executive. The ceremony was performed a week ago Tuesday evening at the home of the bride's daughter, Mrs. Thomas M. Galey, of Independence, and only members of the immediate family were present, the Rev. F. L. Pettit of the First Christian Church officiating. Even Mr. Fitzpatrick's associates in the Prairie Oil & Gas Co. knew nothing of the approaching marriage as it was kept a strict secret, but all of them join with his host of friends everywhere in extending congratulations. Mrs. Fitzpatrick is a woman of pleasing personality and rare attainments and has made many friends during her visits in Independence with her two daughters. Mr. and Mrs. Fitzpatrick are at home to their friends at the Fitzpatrick home, at the corner of First and Main Streets, Independence.

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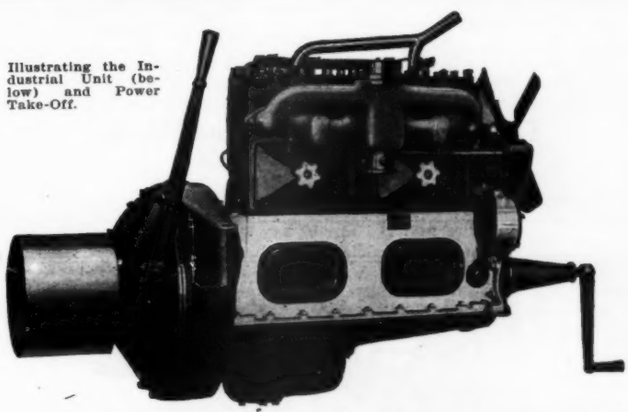
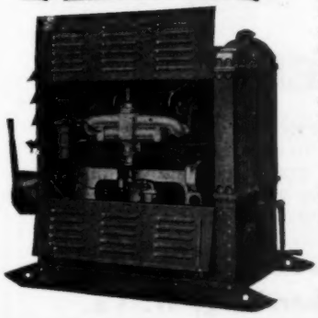


Waukesha
TRADE MARK



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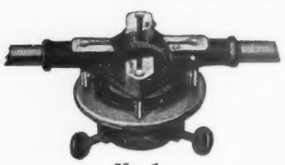

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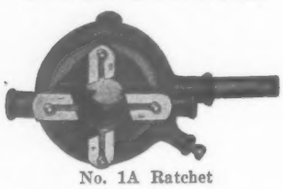

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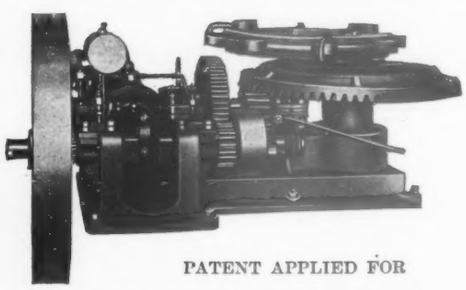

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WILDCAT DEVELOPMENT IN SOUTHERN ARKANSAS

(Continued from Page 72)

of 2,229 feet (probably about 15 feet higher) and we abandoned the location as nonproductive with the consent of all parties concerned at a depth of 2,253 feet.

Surface Characteristics

With reference to the general surface characteristics of the area to which this study is confined, some features of suggestive importance are submitted below in the hope that some genius may arrive, who will be able to suggest definitely their profitable use, through their relationship to the processes of formation which has resulted in their existence, and therefrom, through the deduction available to the trained mind and perception of geology as a science and active branch of the oil industry, reduce the cost of the discovery of oil. It must be borne in mind that none more keenly than the geologist of the oil branch realizes the crucial position in which they are thrust, particularly by the promotion gang, into the conception of the innocent public as divine seers, under the hidden surface mantle, of the places where oil is. From the credulous and suspicious, imaginative farmer to the calculating and equally suspicious captains of finance, the poor geologist is touted and ridden by all kinds of get-rich-quick schemers to the goal limits of promotion in oil, and it is about time the public be given an opportunity, through some means other than postal inspection, of hearing a spade called a spade, and of learning that when we go out to "wildcat" we are flirting with Dame Fortune in our own way and that we are playing long odds against slim chance for stupendous reward.

The surface exposure of materials over the area we have studied are variously named all the way from Cockfield to Midway, Eocene, and Arkadelphia of the Upper Cretaceous. Since opinions in classification of these surface materials frequently clash among those who are recognizedly qualified to speak, the writer confesses, frankly, an almost hopeless ambition to so qualify, and passes the matter at that. Whatever these surface materials may be, of the areas observed so far, one significant condition exists; they are chopped up to no small extent.

There are some few exposures of sharp, well defined and definite formation. One of these lies a short way north or northeast of Rison in Cleveland County. It requires close observation to detect it. It is of laminated clay shales. The plane of throw is as sharp as if cut by a saw. The material on one side is about two shades darker than on the other. However, not many such well defined fault planes are to be seen.

Chopped Up Conditions

Where gullies cut the farm lands and where railways and highways cut through the hills, if one observes closely, particularly after rainfall, he will find evidences far more numerous than he might anticipate of the chopped up condition above suggested. The reformation of materials after disturbance is suggested in areas and lineal sections so frequently encountered in cuts and excavations that one sometimes speculates as to how general this condition might become, were the whole surface mantle of growth and soil material removed.

On occasions, we have been ready to decide we could trace an area of such disturbance along a compass trend across country, only later to pick up a mile or two or three off the flanks either way, such repetitions of the evidence as to lead us to believe an area of some miles radius, might, if exposed properly, exhibit the general characteristics of the cuts. Fordyce, and its environs, for, say 3 miles in every direction, except northeast (which we have not examined in detail) is such an area. Leola, in Grant County, to the south and east, is most pronouncedly such an area of disturbance. Some oil was unquestionably encountered there, probably along the north edge of the area, lying on top of the

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Paleozoic materials penetrated at around 1,900 to 2,000 feet.

It is assumed (only) that we are not mistaken in the impression of the presence of zones, narrow and extensive in length, of these evidences of disturbances.

What do they indicate?

Are they the reformed or replaced materials at the crest of upheaved lines or areas?

Some of them have this suggestive appearance. It is observable in a railway cut 1½ miles long south of the town of Leola. The materials exposed are largely gray to white sands under the soil to a depth of several feet. Maximum depth of the cut is probably 20 feet. Ferruginous rocks in thin bands are observable here and there on both sides of the cut and the characteristic stains of iron are seen in varying intensity. Areas of thinly laminated sand shale composition are exposed in various places. A sheet of rotten lignite is near the bottom. Fragments, up to that of a good sized log, are evident, and some in position, where the excavation brought them to light of petrified wood.

Along Rock Island Railway

Intersecting this same cut, apparently, and in both east and west faces of the bank to be observed, is an area of thin sandy shale bedding in which the planes are dipping in the east side at S.80° E.60° and in the west side at N.80° W., about the same dip, which by incidental, or otherwise, occurrence might indicate the axis of a folded crest line; but on the whole one leaves the exposure with a feeling of nothing definitely established, except an indescribably chopped up condition.

Southward, along the line of the Rock Island Railway, at intervals all the way to El Dorado are seen these evidences of disturbance. And, reviewing briefly the published matter with reference to subsurface structure in the main El Dorado Pool, we find therein an indication at the producing horizon of a multifaulted state, and the authors of the published matter make the following apropos statement: "On the other hand it cannot be said that in this field there is no relation between the geologic structure and the accumulation of oil, for structure includes both folds and faults, and the faults were probably influential in forming the pool. At least it is to be hoped so; in which event, like deduction would bring to favorable attention for test no few areas of the upper country, if a guiding relationship can be discovered between such surface evidences as the foregoing which can yield favorable chances for what may exist beneath.

Of the predominating features of materials visible in exposures of bedded and stratified arrangement, iron rock and lignitic sheets are frequent. These materials as they usually occur in thickness from a fraction of an inch to a foot or so, are so warped and erratic in their position in relation to their associated materials that they have to be rejected at once, so far as their value might be considered to exist for any use as key beds. The ferruginous material most frequently carries nodules of concretionary character and a photographic example is given of the extreme to which this may occur. This exposure was found at a point 6 or 8 miles southwest of Camden.

No Test Wells as Yet

As to the beds of lignitic nature, they probably have a greater local continuity, and, only for the fact that repetitions of them turn up unexpectedly in such position and dimensions as to make it clear that they are not either persistent or regular, one might be led to rely on them as guiding data.

A noticeable improvement appears in the regularity and persistence of true bedding in the area southwest and west of Camden, and, if the location of accumulation of oil may be accomplished by measurement of the position of surface materials in southern Arkansas, this would seem to be a preferred place to work.

So far as the writer is advised, not a test well has been located, thus far, in

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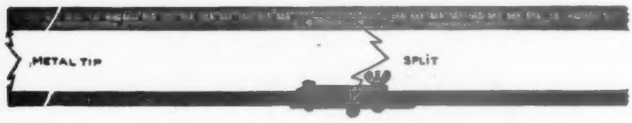

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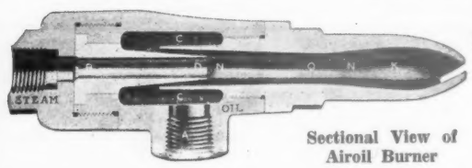

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the area under discussion, with direct reference to evidence of disturbed or faulted surface indications. Where the geologists has been employed, it seems the tendency has been to follow the conventional cut and dried channel of seeking a combination of dips of strata which may suggest structure axis or closure, and, since this method is, to date, without results, it may not be inappropriate to suggest the expenditure of some test effort immediately on or very near to these disturbed indications, and, as a consequence of such a course, I think quite definite conclusions may soon be reached, if, indeed, paying accumulations are not found. Presence of oil as far north as Faith, in Jefferson County; Leola, in Grant; and Malvern in Hot Springs County, has, I think, been definitely established. If, then, the theory of accumulation in faulted area is tenable the foregoing suggestion to test where such areas may be suspected or proven to exist is submitted with the feeling that some oil will be uncovered.

DUTCH EAST INDIES PRODUCTION OF OIL

The following information is contained in a report on the economic situation of the Netherlands East Indies to June, 1923, by H. A. N. Bluett, British Commercial Agent for the Netherlands East Indies, Batavia.

The production of crude oil in 1921, which is the latest year for which statistics are available, was 2,361,509 tons, of which total 279,826 tons was produced in Java and Madura, 595,643 tons in Sumatra, 1,436,779 tons in Borneo, and 49,262 tons in the Island of Ceram. For the famous Tarakan oil fields returns are available to date and the production is given as 663,390 tons in 1922, against 695,313 tons in 1921, and for the first four months of the current year as 249,000 tons.

The Djambi oil fields have not yet reached the producing stage. There can be little doubt that there are many valuable oil fields in these islands which have not yet been exploited; capital is, however, required in order to discover and develop these latent resources. The potential wealth of oil resources appears to be recognized, and no little activity prevails at present in many circles interested in the future possibilities of this country as a great producer of petroleum. Article includes 1921-22 export figures.

NEW GUINEA OIL PERMITS

Terms governing the issue of licenses to prospect for oil and coal in the mandated territory of New Guinea are contained in an ordinance issued by the Australian Minister for Home and Territories. It is provided that the Administrator may issue licenses conferring on the licensee the exclusive right to search for oil or coal for a period of five years on areas not exceeding 1,000 square miles. In the event of payable mineral oil being discovered by a licensee on land included in a license to search, the right will be conferred on such person to a mineral oil lease in respect of 160 acres, also a mineral oil reward lease for an additional 640 acres, to be selected by the prospector from the area to which the general license relates. If a licensee discovers oil—or indication of its presence—he must report immediately to the Administrator, who is authorized to direct the working of the land to guard against loss of mineral oil.

EAST INDIES PROSPECTS

The Netherlands Indian Government has granted seven prospecting licenses to the Batavia Oil Co. Two are for territories near Mamoedjoe, Mandar District, on the Celebes west coast, while the other permits cover areas in the Baggai Archipelago, a small group of islands immediately east of Celebes. Six additional prospecting licenses were granted to private parties, one being the Rembang Residency of Java, two in Pleihari, Bandjermasin District of Borneo, and the others for areas near Sintang, western Borneo.

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MEXICAN RAILROADS PRODUCING OWN FUEL

Wells drilled by the National Lines of Mexico are producing 90 per cent of the fuel oil requirements of the railroad, according to Assistant Director Doria; 400,000 barrels are needed monthly and 12,000 barrels daily can be taken from one well at Halcon and two at Salvasuchi. Despite this, the National Lines still maintains its purchase contract with various companies as a guard against these wells going to salt.

In order to bring about a reduction in the price of crude oil for fuel purposes in various parts of the interior, compatible with similar rates in the United States, the National Railway Lines have placed a new tariff in effect which is approximately 50 per cent lower from Laredo to Azarco, Bermejillo, Durango, Gomez Palacio, San Pedro, Torreon and Durango; 20 per cent to Saltillo and 25 per cent to Monterrey and Parras, while from El Paso to Morse where the Avalos smelter of the American Smelting & Refining Co. is located, the rate was reduced from $17.15 pesos per ton to $11.50 pesos. Also to furnish freight for the newly opened line between kilometer 111 and the Northwestern Railroad of Mexico and Cuatro Cienegas and to permit fuller operations of smelters at Saltillo and Monterrey, a reduction of 42 per cent in rates was made from Sierra Mojada mines to the above mentioned cities by way of Escalon.

ARGENTINE PROVINCE IN CLASH OVER OIL

A proposal drafted by the Committee of Industries and Commerce of the Argentine Chamber of Deputies, with the assistance of Colonel Mosconi, Director of the State Petroleum Workings, if made law, would result in the issue of $20,000,000 Arg. paper bonds of the Government debt, the proceeds being applied to intensification of the State exploitations, borings, tankage, pipe lines, tank tonnage, and so forth. In the north of the Republic a conflict has arisen between the State Railway Department and the Government of the Province of Jujuy. The latter authority, acting as a result of the discoveries of oil at Morro Quemado, has declared all concessions void and suspended the granting of further permits for boring. This notwithstanding that the boring has been purely a private affair.

In view of the fact that the geological formation of the place where oil has been found is similar to that of the whole chain of hills stretching across country from Tucuman to Santa Cruz de la Sierra and that private enterprise was already contemplating further surveys, this renewed proof of ill-advised official restriction is said to be unfavorably regarded by the Federal Government, who may take action on the ground that it is a step in contravention of the terms of the national mining code.

NEW ARGENTINE OIL ZONE

The Governor of the Province of Santa Fe, Argentina, signed a decree on October 31, by which the whole territory of the province was reserved as a fiscal petroleum zone. The text of the decree is as follows:

In view of the solicitations presented by various persons requesting petroleum exploitation rights in the Department of San Cristobal and taking into account the reasons expressed in the decree of the 19th of August, 1913, and the manifestations formulated in the National Congress by the Minister of Agriculture of the Nation in regard to the necessity of reserving for the State all territory where petroleum exists, to the end that the State may decide the most convenient form of exploitation for the general interest, the Governor of the province declares: Article 1. All territory of the province is hereby declared a reserved zone.

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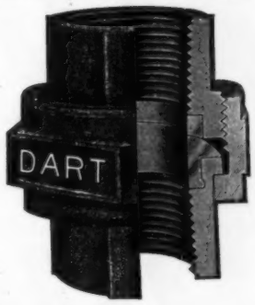

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Gross Production Of Oklahoma Drops 7,000 Barrels Daily

The gross production of Oklahoma for November was 12,334,620 bbls. or an average of 411,154 bbls. daily. Production for October was 12,961,782 bbls. or an average of 418,122 bbls. daily; for September 12,812,220 bbls. or an average of 427,074 bbls. daily. Oklahoma's biggest month of production was in May when it totaled 15-658-782 bbls. or 505,122 bbls. daily, but its greatest daily average came in June, a 30-day month, when 519,091 bbls. daily was recorded.

Falling off in production in the Burbank and Tonkawa Fields, the largest producing divisions in the State was responsible for the decline. The southern end of the State showed an increase, the combined output of the pools in Carter, Stephens, Cotton, Cement and Garvin Counties showing a total daily average of 71,079 bbls. in November as against 70,657 bbls. in October.

The lifting of the proration order by some of the pipe lines did not appear to effect the old fields very much. Some of them show a little increase, while others continue to decline in the natural way that old pools do.

The Graham Field in Carter County increased from 6,714 bbls. a day in October to 9,324 bbls. a day in November. The Osage fields outside of Burbank had an increase from 25,831 bbls. in October to 28,163 bbls. in November.

Burbank's daily average fell off from 90,382 bbls. in October to 86,077 bbls. in November, and Tonkawa's daily average dropped from 51,980 bbls. in October to 47,326 bbls. in November.

The Kansas fields showed a decrease in daily average production in November going from 75,366 bbls. to 74,914 bbls. Greenwood County experienced a slight gain, but all other divisions suffered a loss.

Following are the figures for the two States:

OKLAHOMA

County—		
Washington	7,112	7,112
Nowata-Rogers	6,154	6,154
Osage-Kay—		
Burbank	86,077	
Osage, outside of Burbank	28,163	114,240
Tulsa—		
Bird Creek, Owasso, etc.	4,835	
Red Fork, Sand Springs, Turkey Mountain, etc.	2,108	
Bixby, Leonard and Jenks	2,286	
Broken Arrow	699	9,928
Okmulgee—		
Mounds, Beggs, Hamilton Switch and Youngstown	12,530	
Bald Hill	2,806	
Okmulgee and Morris	3,295	
Henryetta and Schulter and Tiger Flats	3,061	21,692
Muskogee and Wagoner	1,645	1,645
Okfuskee, Hughes and Seminole—		
Wewoka	14,175	
Deaner, Lyons, Okemah, Wetumka, Miscellaneous	7,450	21,625
Creek—		
Cushing and Shamrock	23,917	
Glen, Sapulpa and Kiefer	9,905	
Bristow, Kelleyville and Depew	42,460	
Eastern Bristow	7,016	83,298
Pawnee—		
Cleveland and Keystone	3,936	
Jennings	4,216	8,152
Payne—		
Yale, Quay and Ingalls	5,946	
March Pool (N. Cushing)	1,715	7,661
Kay and Noble—		
Blackwell and Deer Creek	2,139	
Mervine	775	
Ponca City	882	
Tonkawa	47,326	
Billings	616	51,738
Garfield—		
Garber	5,691	5,691
Carter—		
Healdton	17,244	
Hewitt	26,188	
Milroy-Fox	2,870	
Brock	442	
Graham	9,324	50,066
Stephens-Cotton—		
Loco	2,405	
Kilgore	219	
Comanche	936	
Duncan	8,712	
Walters	1,250	13,522
Caddo—		
Cement	1,979	1,979
Garvin—		
Robberson	5,512	5,512
Beckham—		
Sayre	699	699
Pontotoc—		
Allen	440	440
Total Oklahoma		411,154

KANSAS

County—	
Marion—	
Florence	3,014

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Potwin	660	
Cameron-Robinson	768	
Wilson-Dunkle	2,610	
Towanda	3,570	
El Dorado	6,644	
Fox-Bush	4,690	
Nttle-Koogler	1,611	
Sluss	517	
Blankenship	1,494	
North Augusta	1,170	
South Augusta	2,466	
Smock	260	
Douglas	204	
Leon-Weaver	1,388	32,959
Greenwood-Woodson—		
Virgil	7,712	
Seeley	6,860	
Thrall-Burkett	4,006	
Sallyards	1,679	
Polhamus	811	
Teeter	927	
Miscellaneous	106	22,101
Other Counties—		
Cowley	2,109	
Chautauqua	2,775	
Harvey	137	
Other fields	7,500	12,521
Total Kansas		74,914

OKLAHOMA

Total production in Nov., 1923	12,334,620
Total production in Oct., 1923	12,961,782
Decrease in November	627,162
Total production in Nov. 1922	12,615,560
Decrease in Nov. 1923, from Nov., 1922	280,940
Average daily production in Oct., 1923	418,122
Decrease in daily average production in November	6,968
Average daily production in Nov., 1922	420,452
Decrease in Nov., 1923, compared with Nov., 1922	9,298

KANSAS

Total production in Nov., 1923	2,247,420
Total production in Oct., 1923	2,335,346
Decrease in November	487,926
Total production in Nov., 1922	2,649,900
Decrease in Nov., 1923, from Nov., 1922	402,480
Average daily production in October, 1923	75,366
Decrease in Nov., 1923, from Oct., 1923	452
Average daily production in Nov., 1922	88,330
Decrease in daily average production in Nov., 1923, from Nov., 1922	13,416

TEXAS FEARS EFFECTS OF FRAUDS AND LAWS

HOUSTON, Tex., Dec. 23.—Henry H. Hoffman, former president of the Blue Bird Oil Co., of Houston; James H. West, J. A. Whitten, Sidney V. Alwes and Williams Davies, associated with him, were found guilty of using the United States mails to defraud and conspiracy to violate the postal laws.

Hoffman was given two years in the Federal penitentiary and fined $5,000 Alwes and Davies were each fined $1,000 and sentenced to 60 days in jail.

The operations of Hoffman, Doctor Cobk, S. E. Cox and others have aroused the State authorities and steps are being taken to rid Texas of "blue-sky" oil operators. The Secretary of State has asked district judges to have the grand juries investigate alleged promotions, under an act of the last legislature, which provides for a maximum penalty of $10,000 and imprisonment for not more than five year for violation of the blue-sky laws. Heretofore, all convictions have been secured in the Federal courts on evidence submitted by the post office authorities and the Department of Justice.

Money is needed to develop the natural resources of the State and this money must come from Northern and Eastern investors. This applies not only to oil, but to other resources, including railroad extensions and other public utilities. The operations of promoters, convicted in the Federal Courts at Fort Worth and Houston have brought the State into disrepute, especially among investors. Every now and then, too, some Texas politician breaks loose and proposes legal or legislative action against corporations and all this has a tendency to make the big investor timid.

Such conditions have caused the business men and financiers of the State to become interested in the conduct of promoters and they are now seeking to provide a remedy and protection.

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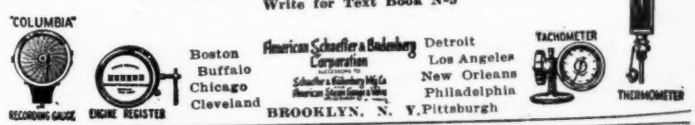

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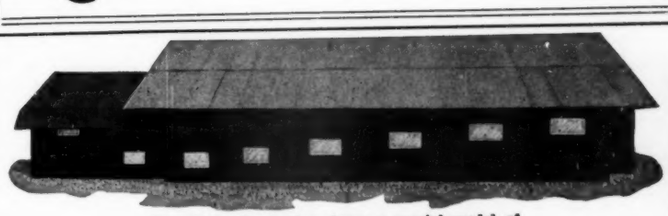

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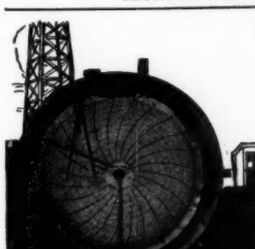

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Report of Operations in Eastern Fields for November, 1923

EASTERN FIELDS

Summary of Completed Work

Field—	Comp.	Prod.	Dry	Gas
Allegany	27	99	0	0
Bradford Field	76	203	4	0
Middle Field	9	24	1	2
Venango-Clarion	24	29	2	3
Butler-Armstrong	14	30	3	2
Southwest Penn.	29	39	5	19
West Virginia	103	381	20	51
Southeastern Ohio	73	738	15	7
Total November	355	1,543	50	84
Total October	351	1,390	41	81
Difference	4	153	9	3

Rigs and Wells Drilling

Fields—	Rigs	Drg.	Ttl.
Allegany	10	16	26
Bradford Field	20	52	72
Middle Field	0	5	5
Venango-Clarion	1	19	20
Butler-Armstrong	13	14	27
Southwest Pennsylvania	15	37	52
West Virginia	88	132	220
Southeast Ohio	34	68	102
Total November	181	343	524
Total October	179	384	562
Difference	2	41	39

WELLS COMPLETED

ALLEGANY FIELD

Dean, S. & A. Austin 1
Dean, S. & A. Austin 1
Fulmer, H. K. Fulmer et al 1
Fulmer, H. K. Fulmer et al 1
Cornwell, L. E. Whitford et al..... 1
Fee, Empire G. & F. Ltd. et al..... 4
Norton, Knight Creek Oil Co..... 1
Fee, Homestead Oil 2
Fee, Hazelwood Oil 5
Fee, Empire 2
Fee, A. J. McDivitt 2
McCromley, State Bank of Boliver..... 5
Fee, Birtcil & Birtcil 3
Fee, Hannifan et al 5
Coast et al, M. J. Cromley et al..... 2
Pierce, F. J. Brown et al 20
Fee, R. M. Brown 2
Fee, Forest Oil Co. 10
Fee, Forest Oil Co. 15
Prosser, Producers Gas Co. 1
Fee, Burr Oil Co. 3
Smith & Grey, J. B. Grey 2
Childs, N. K. Wilson 2
Fee, Sawnett Oil Corp. 2
Fee, G. N. Hill et al 3
Fee, Sawyer & Wosson 2
Burdick Est., Turner & Cuba N. B.... 1

Wells completed 27
Production 99

BRADFORD FIELD

W. Weston, Jr., Tr., S. P. O. 69..... 3
Riddel Est., S. P. O. 29 1
Rounds & Lawrence, S. P. O. 38..... 1
Burns, Krampf & McCandless 21..... 8
Burns, Fitzgibbon Est et al 10 5
Fee, J. V. Golden 22 2
Bing, Dale, Baldwin & Moore 4..... 2
Bing, Tidewater Pipe Co. Ltd. 5..... 1
Fee, W. M. Whitehead 2
N. V. V. Franchot, F. M. Johnson & Son 1
Fee, Ellen Barry 2
Fee, E. B. Sage 22 2
Fee, R. O. Landers 27 2
Fee, T. B. Wilson 6 1
Griffith et al, J. E. Golden 3
J. W. Leasure, S. P. O. 4
Fee, S. P. O. 2
Bing, 453, S. P. O. 86..... 5
Fee, Hilliard & Dodge..... 2
Fee, Wm. C. Kennedy Co. 98 2
Fee, Wm. C. Kennedy Co. 94 2
Bing, 136, Kennedy Co. No. 4 41..... 3
Fee, S. P. O. 41 4
F. W. Paul Est., S. P. O. 5..... dry
Bing, 136, Simpson Bros. 17..... 7
Bing, 402, S. P. O. 2
Bing, 394, Saph & Wright 2
Bing, 417, S. P. O. 5
Bing, 591, Associated Prod. 254..... 2
Bing, 576, S. P. O. 82..... 2
Bing, 499, S. P. O. 32 2
Bing, 570, S. P. O. 83 10
Bing, 370, C. L. Wann et al 23..... 1
Bing, 491, Forrest Oil Co. Inc. No. 9 33 5
Duke, Gridiron Oil Co. 3 ..... dry
Baldwin, Forest Oil 3
Porter, Forest Oil 3
Chambers, J. A. Bucher 3
Borden, W. B. Miller 2
Skinner, W. E. Burdick 2
Sprague, F. E. Baldwin 4
White, South Penn 5
White, South Penn 1
Pittenger, South Penn 1
Middaugh, South Penn 1
D. C. & B., C. A. Duke 2
Williams, Fuller & Wilson 3
Chamber, Schorman & Williams..... 3
Duke, Staley & Thomas 1
Fee, F. M. Boocks 2
Meldrum, Stephan & Taft 2
Whipple, South Penn 2
Fee, J. H. Gibson 1
Lafferty, McGregor & Grant 2
Gibson, Hazelwood Oil 2
Jack, J. & H. M. Jack 1
Fee, I. Willett heirs 1
Bing., Murphy, Paul & Ostrander 2
Melvin, South Penn 2
Lot 2018, Duhring Dev. 1 1
Lot. 2018, Duhring Dev. 6 1
Lot 2018, Duhring Dev. 8 1
Lot 2593, Hoskins & Roeder 5
Lot 420, Sloan & Zook 46 1
Lot 437, J. C. Cochran 45 1
Lot 437, J. C. Cochran 46 3
Given, M. E. Barry et al 22 1
Duke, M. L. Boyle 9 5
Bing., South Penn 25 3
Wright, G. McCool et al 26 8
Wright, G. McCool et al 25 8
Burgess, D. W. Wright et al 20 8
Bing., H. P. McKalip et al 37 7

Wells completed 76
Production 203
Dry 4

MIDDLE FIELD

Weed, Berry et al 15 1
Huddleson, Foster & Co. 1 ..... dry
Osgood, Rembold, Cozad & Corse, 1.... 5
Water Co., Eberhart & Johnson 1
Lacy, L. E. Chapman 1
Lot 38, H. A. Siggins ..... gas
Lot 40, Kinzua Chem. Co. ..... gas
Hannah, E. P. Pequignot 4 1
Jennings, C. E. Carnahan 29 15

Wells completed 9
Production 24
Dry 1
Gas 2

VENANGO-CLARION

McCandless, A. T. Straub 51..... 1
Baird, Crawford, Gregory & Co. 29..... 1
Porter heirs, J. B. Porter 44..... 1
McKee, C. L. Irwin 36..... 1
Rice, Rice & Thompson 7..... 1
Ware, W. M. Ware 6 1
Hasson, Ed Siederman 43..... 5
Critchlow, S. Y. Ramage 34..... 1
Eakin, G. A. Eakin 27..... 1
McElree, T. J. McElree 48..... 1
Porter, E. A. Burch et al 80..... 2
Philadelphia & Boston, McKim, Titus et al 3 ..... dry
Fulmer, Oil City Nat. Bank 7..... 1
Ownes, E. L. Andrews 7..... 1
Tract 74, S. Y. Ramage 62..... 6
Jackson, Leslie & Co. 3..... 1
Clarion—
Kapp & Graham, Alum Rock Gas 6.... gas
Kenemuth, Frank Kenemuth et al 8.... dry
Best, Weaver Oil & Gas 1..... gas
Garis heirs, Meng, Garis et al 4..... 1
Garis, Alum Rock Gas 4..... 1
Best, Berlin, Yonkers et al 1..... 1
McCall, Parker Drilling et al 1..... gas
Heeter, Heeter heirs 1..... 1

Wells completed 24
Production 29
Dry 2
Gas 3

BUTLER-ARMSTRONG

Ramsey, Wm. Pfeifer & Co. 1..... abd
Stepp, Floyd Alberts et al 1..... dry
McNaughton, W. E. & E. J. Porter 1.. gas
McEvoy, Shaner, Swartzlander et al 4.. gas
Sasse heirs, T. W. Phillips Gas & Oil 3.. 7
Link Brad Penn Oil 1 ..... dry
Ripper Truman, Johnson et al 6..... 1
Freshkorn, O. Shoup & Co. 1..... 3
Goehring, J. A. Elliott & Co. 1..... 7
Knauf, E. H. Hutchison 1..... dry
Campbell, Martin et al 2..... 1
Hutchison, L. D. & T. R. Campbell 7.. 3
Christy, Grieff, Elbeck et al 1..... 3
Cumberland, Cumberland, Campbell & Sherwin 2 4
Ray, Proper, Graham et al 2..... 1

Wells completed 14
Production 30
Dry 3
Gas 2
Abandoned 1

RIGS AND WELLS DRILLING

ALLEGANY FIELD

Rigs

Fee, F. G. Richart et al.
Fee, Hazelwood Oil.
Coast et al, M. J. Cromley et al.
Fee, Allegany-Bradford Oil Corp.
Fee, Hannifan et al.
Fee, Birtcil & Birtcil.
Prosser, Producers Gas Co.
Fee, Hatch & Hill.
Fee, Dusenbury et al.
Canfield, Carter & Bradley.

Wells Drilling

Fee, Empire G. & F.
McKee, Empire G. & F.
Fee, Empire & Breckenridge.
Nobles, Empire G. & F.
McDivitt, E. J. Phillips etl al.
Fee, R. J. Dermitt.
Fee, Birtcil & Birtcil.
McDermott, Willbart Oil.
Fee, C. J. Fornes et al.
Fee, Forest Oil.
Fogerty, Producers Gas.
Fee, Sawnett Oil Corp.
Fee, Jacob Trenkle Est.
Fee, J. Dunning & Sons.
Childs, Empire & Childs.
Rigs, 10; wells drilling, 16; total, 26

BRADFORD FIELD

Rigs

Riddell Est., S. P. O. 39.
W. Weston Jr., Tr., S. P. O. 70.
N. V. V. Franchott, S. A. Shannon.
Griffith et al, J. E. Golden
Bing. 453, S. P. O. 87.
Dana & Diem, Kishwaukee Oil Co 2.
Fee, Hilliard & Dodge.
Fee, Wm. C. Kennedy Co. 96.
Bing. 130, Kennedy Co. No. 4 43.
Fee, S. P. O. 42.
Bing, 419, S. P. O.
Bing. 591, Associated Producers 55.
Bing. 568, Associated Producers 253.
Bing. 570, S. P. O. 87.
Bing. 429, J. A. Hooper 58.
Porter, Forest Oil.
Fee, F. M. Boocks.
Wright, Elder & Digel.
Hamlin, S. H. Elder.
Lawton, Cohn & South Penn 46.

Wells Drilling

Rounds and Lawrence, S. P. O. 39.
Bing., Dale, Baldwin & Moore 5.
Fee, Howard Wile.
Fee, E. B. Sage 23.
J. W. Leasure, S. P. O.
T. & L. Drake heirs, M. T. Hannon.
Fee, Grant & Mohan 53.
Fee, S. P. O. 26.
Bing. 170 and 171, Elder Redfield et al 41.
Bing. 475, S. P. O. 47.
Bing. 150, S. P. O. 46.
Bing. 184, Associated Producers 257.
Fee, S. P. O.
Fee, S. P. O.
Fee, Wm. C. Kennedy Co. 95.
S. P. O., E. K. Lane 41.
Bing. 136, Kennedy Co. No. 4 39.
Bing. 136, Kennedy Co. No. 4 42.
Bing. 402, S. P. O.
Bing. 370, Hazelwood Oil Co.
Bing. 576, S. P. O. 84.
Bing. Satt. 576, S. P. O. 85.
Bing. 590, Oakes & Sons and Roy Diament 18.
Bing 490, T. H. Kennedy No. 2 95.
Bing. 401, J. E. Ward 14.
Bing. 420, J. C. Grow 25.
Duke, Gridiron Oil 2.
Noble, Forest Oil.
Porter, Forest Oil.
Chambers, J. A. Bucher.
Skinner, W. E. Burdick.
Sprague, F. E. Baldwin.
Middaugh, South Penn.
Sheppard, South Penn.
D. C. & B., C. A. Duke.
Williams, Fuller & Wilson.
D. C. & B., Cora M. Simon.
Slater, Patton & Wilson.
Burns, Margaret Burns.
Meldrum, Stephan & Taft.
Corwin, J. E. Gallagher.
Fee, C. H. Corwin.
Buchannan, South Penn.
Clark, Brooks & Hoffman.
Duke, M. L. Boyle 10.
Lawton, Gallup et al 23.
Emerson, G. L. Rhodes et al.
Lawton, Cohn & South Penn 45.
Bing., Andrus & McDowell 80, 81.
Burgess, D. W. Wright et al 21.
Bing., J. L. Yerdon 34.
Rigs, 20; wells drilling, 52; total, 72.

MIDDLE FIELD

Wells Drilling

Weed, Berry et al 16.
Devore, Campbell Hill Oil 1.
T. & W., D. E. Carnahan 48.
Glenn, Holmes et al 1.
Hoffman, Titusville Trust 24.
Wells drilling, 5.

VENANGO-CLARION

Rigs

McElhatten, Whitehill & McElhatten 4.

Wells Drilling

Cross, H. J. Hoffman 5.
McKee, C. L. Irwin 37.
Hines, A. H. & F. P. Sloan 13.
Hasson, Ed Seiderman 44.
Brummigan, A. W. Bronson 67.
Brown, C. H. Brown 9.
Parsons, S. R. & T. W. Parsons 13.
Dempsey, Yanke, Suhr et al 8.
Tract 74, S. Y. Ramage 63.
Clarion—
Corbett & Wilson, Elk Natural Gas 6.
Neuland heirs, A. J. & J. B. Vogelbacher 1.
Kurtzhals, Kurtzhals, Hertle & Co. 1.
Whitling, Alum Rock Gas 10.
Swartzfager, Swartzfager & Hall 10.
Shorts, Shorts Oil & Gas 15.
Kettering, Shorts Oil & Gas 1.
Kline, Gibson, Kline et al 3.
Garis, Alum Rock Gas 3.
Kurtz, Miller Oil & Gas 2.
Rigs, 1; wells drilling, 19; total, 20.

BUTLER-ARMSTRONG

Rigs

Montgomery, E. W. Pitts 3.
Bowers, Joseph Berry et al 1.
Dewey estate, Charles Jones 1.
Forcht, Forcht, Smith et al 1.
Rush, Rush & Co. 1.
Flinner, E. H. Hutchison 1.
Rowan, Paul Kradel et al 1.
Brinton heirs, Alexander, Sherman & McCullough 15.
Rader, Wm. Rader & Co. 2.
Bauer, Burns, Bauer et al 3.
Christy, Grieff, Eibeck et al 2.
Bell, Proper et al 1.
Boggs heirs, R. C. & W. V. Binkerd.

Wells Drilling

Beikler, Steen & Co. 1.
Little, Little & Co. 1.
Ellenberger, A. W. Ellenberger et al 1.
Peters, Fairlie & Peters 2.
Sasse heirs, Denny & Co. 2.
Fennell, Lang & Co. 1.
Sheridan heirs, Nobel & Co. 1.
Graham, Clully & Donaldson 1.
Leisy, M. B. Finnessy 3.
Shaner, M. B. Finnessy 15.
Duncan, J. A. Elliott et al 2.
Shira, T. P. Bell 2.
Moore, J. S. Walker.
Smith, Jane Oil.
Rigs, 13; wells drilling, 14; total, 27.

SOUTHWEST PENNSYLVANIA

WELLS COMPLETED

WASHINGTON COUNTY

Scott Heirs, Magnetic O. & G. Co. 1.... dry
Day, Mfrs. L. & H. Co. 1 ..... dry
Wilson, New Oil & Gas Co. 10 2
Mounts, Emerald Pet. Co. 2 ..... gas

Wells completed 4
Production 2
Dry 3
Gas 1

ALLEGHENY COUNTY

Stewart, So. P. O. Co. 3 15
Campbell, Panhandle Oil Co. 1 1
Murphy, Murphy & Co. 2 ..... gas
McMath, Morris Oil & Gas Co. 3..... gas
Swartz, Miller & Co. 1 ..... dry
Sarver, Smith & Daugherty 1 ..... gas
Musgrave, Halsinger & Co. 1 ..... gas
Pfaff, E. A. Beam Est. 3 ..... gas

Wells completed 6
Production 11
Dry 1
Gas 5

BEAVER COUNTY

McDevitt, Jas. R. Edwards 5 1

Wells completed 1
Production 1
Gas 1

GREENE COUNTY

South, Fred Garrison 1 ..... dry
Powell, Phila. Oil Co. 2 ..... gas
Carmen, Keystone O. & G. Co. 1 ..... gas
Wright, Wright-Grim O. & G. Co. 1 ..... gas
Waters, Boundy Bros. & Co. 1 ..... gas
Riggs, Ayres O. & G. Co. 1 ..... gas
Johnson, Carnegie Gas Co. 1 ..... gas
Murray, Carnegie Gas Co. 2 ..... gas
Carey, Carnegie Gas Co. 2 ..... gas
Williard, Carnegie Gas Co. 1 ..... gas
Conger, Carnegie Gas Co. 1 ..... gas
Closser Heirs, Mfrs. L. & H Co. 3 ..... gas
Brown, Waynesburg Home Gas Co. 1.. gas
McGreevy, Waynesburg Prod. Co. 1 .. gas
Grier, Maxton Oil Co. 1 ..... gas
Clemons, Greensboro Gas Co. 1 ..... dry

Wells completed 13
Production 13
Dry 1
Gas 12

WASHINGTON COUNTY

Rigs

Berry, J. S. Watson & Co. 2.
Paul Est., Wm. McK. Smith 2.
Carter, Clay & Karns 1.

Wells Drilling

Parkinson, Mfrs. L. & H. Co. 2.
Hunter, Mfrs. L. & H. Co. 1.
Grimes, N. G. Co. of W. Va. 1.
Parkinson, Carnegie Gas Co. 2.
Day, Carnegie Gas Co. 1.
Weir, Dunn Orrill & Co. 4.
McLaney, E. H. Tague 2.
Rigs, 3; wells drilling, 7; total, 10.

ALLEGHENY COUNTY

Rigs

Bowman, H. W. Walters 1.
McKinney, M. L. Williams 2.
Shenot, Leidecker & Co. 4.
Dickson, Sutton-Davis O. Co. 1.

Wells Drilling

Pahlman, Amer. N. G. Co. 2.
Malisee, Peoples Gas Co. 4.
Rampt, Clark & Co. 1.
Blind Floral Co., Blind Floral Co. 1.
Michael, Local Parties 1.
Minerst, Mellon & Pollock 1.
Clifford, B. Walley & Co. 1.
Wells, Amer. N. G. Co. 1.
Downey Heirs, Harbison & Co. 1.
Davis Heirs, Davis O. & G. Co. 3.
Rigs, 4; wells drilling, 10; total, 14.

GREENE COUNTY

Rigs

Tanner, Greensboro Gas Co. 2, 3.
Riggs, Ayres O. & G. Co. 2.
Pierson, Pierson O. & G. Co. 2.
Miller, Mfrs. L. & H. Co. 2.
Closser Heirs, Mfrs. L. & H. 3.
Brown, Brown O. & G. Co. 4.
Throckmorton, Mfrs. L. & H. Co. 1.

Wells Drilling

Garrard, J. L. Garrard 49.
Whitehill, Peerless O. & G. Co. 2.
Yeager, H. D. Freeland & Co. 1.
Strosnider Heirs, Willis O. & G. Co. 1.
Wise, H. C. Campbell 1.
Webster, H. C. Campbell 1.
Staggers Heirs, H. C. Campbell 1.
Lungy, Little Four O. & G. Co. 1.
Lemley, Tague & Co. 1.
Anderson, Carnegie Gas Co. 2.
Grier, Carnegie Gas Co. 3.
Keffer, Boundy Bros. & Co. 1.
Bennett, Bennett O. & G. Co. 2.
Whipskey, Big Five Oil Co. 1.
Bissett, Snyder & Bissett 1.
Estell, Covert & Phillips 1.
McNay, Mfrs. L. & H. Co. 1.
Clutter, Greensboro Gas Co. 1.
Huffman, Greensboro Gas Co. 1.
Wise, Greensboro Gas Co. 1.
Rigs, 3; wells drilling, 29; total, 32.

WEST VIRGINIA

LEWIS COUNTY

Gaston, A. P. Riley 1..... dry
Smith, J. C. Chidester 1..... gas
Bailey, Steinbeck & Krouse 1..... gas
Smith, Carnegie Gas Co. 1..... gas

Wells completed 4
Production 3
Dry 1
Gas 3

MARION COUNTY

Koen, Eastern Pet. Co. 2..... gas
Holbert, J. A. Snodgrass 1..... gas
Cambell heirs, Eastern Pet. Co. 1..... dry

Wells completed 4
Production 3
Dry 1
Gas 2

HARRISON COUNTY

Duncan, Lohn & Barnett 1..... gas
Cork, Cksby, L. & H. Co. 4..... dry
Jones, Bridgeport L. C. Co. 1..... dry
Davis heirs, Graselli Chem. Co. 5..... dry
Duffy, Azputin O. & G. Co. 1..... gas
Ladurg, Hope C. & R. Co. 1..... gas
West, W. Va. C. G. Co. 1..... gas
Losh, Vesper O. & G. Co. 1..... gas

Wells completed 8
Production 4
Dry 1
Gas 4

MONONGALIA COUNTY
Kerr, So. P. O. Co. 9 5

Wells completed 1
Production 5

WETZEL AND TYLER COUNTIES
Murphy, Carnegie Gas Co. 1 5
Wade, Carnegie Gas Co. 3 ..... gas
Abrigg, Carnegie Gas Co. 4 ..... gas
Kuhn, Hope C. & R. Co. 1 ..... gas
Farrell, Philadelphia Co. 2 ..... dry
Lyons, Wiser Oil Co. 3 1
Koch, Silver Hill O. Co. 1 80
Davis, Silver Hill Oil Co. 1 5
Anderson, Silver Hill Oil Co. 1 ..... gas
Purbee, Carnegie Gas Co. 1 ..... gas
Parrish, Phila. Oil Co. 1 ..... gas
Spencer, Eagon & Baker 1 ..... dry
McGinnis, H. L. Lambert 6 ..... gas

Wells completed 13
Production 11
Dry 1
Gas 8

MARSHALL COUNTY
Keller, Mrs. L. & H. Co. 2 25
Davis, G. B. Patterson 2 ..... gas

Wells completed 2
Production 25
Dry 0
Gas 1

DODDRIDGE COUNTY
Smith, Eastern Pet. Co. 2 5
Coulehan, Eastern Oil Co. 4 ..... dry
Maxwell, Carter Oil Co. 30 ..... gas
L. Maxwell, Carnegie Gas Co. 28 ..... gas
Ross, Trainer & Travis 1 ..... dry
Allen, Trainer & Summers 1 ..... dry
Douglas, Hope C. & R. Co. 3 5
Ford, Mfrs. L. & H. Co. 1 ..... gas

Wells completed 8
Production 10
Dry 3
Gas 3

RITCHIE COUNTY
Mason, Hope Gas Co. 2 ..... dry
Smith, Phila. Co. 1 ..... dry
Clark, Carnegie Gas Co. 2 ..... gas
Reed, Carnegie Gas Co. 1 ..... gas
Mitchell heirs, Hope Gas Co. 1 10
Leggett, Carter Oil Co. 1 ..... gas
Spencer, Star Oil Co. 4 ..... gas
Tharp, Carnegie Gas Co. 4 ..... gas
Parson, Hope Gas Co. 6 ..... gas
Day, Elder & Straley 2 ..... gas
Prather, Phila. Oil Co. 1 2
Mullenix, Carnegie Gas Co. 1 ..... gas
Howard, Carnegie Gas Co. 2 ..... dry
Mason, I. O. & G. P. Co. 2 3
Darnell, I. O. & G. P. Co. 1 20
Stursburg Realty Co., Astron Oil Co. 3.. gas
Wilson, Phila. Oil Co. 1 2
Barlow, Rinehart Oil Co. 2 ..... dry
McTige, L. Robinson 1 1
Freeman, Boyce Oil Co. 1 ..... gas
Darnell, Stephens Oil Co. 1 ..... dry
Williamson, J. F. Deem & Co. 3 4
Ryan, Mellon & Co. 1 3
Jackson, Penn Royal O. & G. Co. 2.... gas
Burke, Burke O. & G. Co. 7 ..... gas
Peddicord heirs, So. P. O. Co. 2 10
Maxwell, D. French & Co. 1 3
McIntyre, Henzelman Oil Co. 1 ..... dry

Wells completed 28
Production 58
Dry 5
Gas 12

GILMER COUNTY
Hagiman, Hope C. & R. Co. 3 ..... gas
Bennett heirs, Hope C. & R. Co. 1 .... gas
Wigner, Laurel Creek O. Co. 1..... gas
Webster, So. P. O. Co. 5 150
Jarvis, Hope C. & R. Co. 1 ..... gas
Campbell, Roanoke O. & G. Co. 1..... dry

Wells completed 6
Production 150
Dry 1
Gas 4

WOOD COUNTY
Smith & Goldish, Smith & Goldish 2 .. dry
Favis, Park Bowser 1 10
Musser, Ridge O. & G. Co. 7 10
Neal, L. P. Bickel & Son 1..... dry

Wells completed 4
Production 20
Dry 2
Gas 0

PLEASANTS COUNTY
Wells, Schlagel & Fried 54 20
Guard, Better Oil Co., 3..... 1
Hammett, E. A. Ryan 6..... 50
Jewell, Harrisville O. & G. Co. 1..... dry
Taylor, W. C. Patterson 38 1
Yergin, J. S. Pwens & Co. 1..... gas
Fleming, Creek Oil Co. 2..... dry

Wells completed 7
Production 72
Dry 2
Gas 1

ROANE COUNTY
Milhoun, R. D. Cummings 1 ..... dry

Production 0

CALHOUN COUNTY
Gainer, Hope Gas Co. 1 ..... gas
Huffman, Chartiers Oil Co. 4..... dry

Wells completed 2
Dry 1
Gas 1

PUTNAM COUNTY
Trash, Logan Gas Co. 1 ..... dry

Production 0
Gas 1

KANAWHA COUNTY
Martin, U. F. G. Co. 1..... gas
Thompson, U. F. G. Co. 1..... gas
Sunday C. C. Co., U. F. G. Co. 36..... gas
Coalburg Colliery Co., So. P. O. Co. 7.. gas

Wells completed 4
Production 0
Dry 0
Gas 4

BOONE COUNTY
Bedford, Owens B. & M. Co. 3..... gas
Price, Owens B. & M. Co. 1 ..... gas
Allen, Owens B. & M. Co. 6 ..... gas
Allen, Owens B. & M. Co. 7..... gas
L. P. & R. Tract, Pure Oil Co. 7..... 15

Wells completed 5
Production 15
Dry 0
Gas 4

CABELL COUNTY
Williams, Commercial Gas Co. 1..... gas
Williams, Aetna O. & G. Co. 2..... gas
Braley, Harshbarger O. & G. Co. 9..... gas

Wells completed 3
Production 0
Dry 0
Gas 3

LINCOLN COUNTY
McGhee, Merman Moore 2 ..... gas
Grass, Columbus G. & E. Co. 385..... 6

Wells completed 2
Production 6
Dry 0
Gas 1

LOGAN COUNTY
Yawkey-Freeman, So. P. O. Co. 1..... gas

Wells complete 1
Gas 1

LEWIS COUNTY
Rigs
Keyser, Carnegie Gas Co. 1.
Wells Drilling
Roherbaugh, Shea O. & G. Co. 2.
McDonald, H. H. Duncan & Co. 1.
Starcher, Jones Oil Co. 1.
Carr, McCall O. & G. Co. 1.
Rigs, 1; wells drilling, 4; total, 5.

MARION COUNTY
Rigs
Neptune, Funk & Null 1.
Toothman, Peerless Oil Co. 2.
Ice, Fairmont Gas Co. 1.
Wells Drilling
Hill, Owens B. & M. Co. 1.
Freeland, Owens B. & M. Co. 1.
Murray, Carnegie Gas Co. 2.
Renner, W. Haught & Co. 1.
Orndoff, S. N. Elliott 1.
Rigs, 3; wells drilling, 5; total, 8.

HARRISON COUNTY
Rigs
Talkington, Lohn & Barnett 1.
Grove, Marsh Bros. 1.
Goodwin, So. P. O. Co. 10.
Stark, Golden O. & G. Co. 1.
Lowe heirs, Horner Bros. 2.
Wells Drilling
Michael, Phila. Oil Co. 1.
Gump, So. P. O. Co. 8.
Hannah, Hampton O. & G. Co. 1.
Morris, Clarksburg L. & H. Co. 1.
Davis, heirs, G. L. Cabot 2.
Reed, Grasselli Chem. Co. 2.
Swiger, Phila. Oil Co. 1.
Rigs, 5; wells drilling, 7; total, 12.

MONONGALIA COUNTY
Rigs
Cannon heirs, Martin O. & G. Co. 1.
Wright, Moore-Tex Oil Co. 1.
Wells Drilling
Jackson, Mfrs. L. & H. Co. 1.
Williams, Owens B. & M. Co. 1.
Wright, Randall Gas Co. 1.
Yagger, Hope C. & R. Co. 1.
Austin, Dunkard Valley G. Co. 1.
Rigs, 2; wells drilling, 5; total, 7.

WETZEL AND TYLER COUNTIES
Rigs
Antill, Johns Gas Co. 5.
Kyle, Amer. O. D. Co. 1.
Baker, Hope Gas Co. 1.
McIntyre, Alva O. & G. Co. 1.
McGinnis, H. L. Lambert 7.
Chambers, Mfrs. L. & H. Co. 1
Hazlett, U. S. Stamping Co. 2.
Keller, Mfrs L. & H. Co. 3.
Wells Drilling
Sidwell, Mfrs. L. & H. Co. 2.
Clark, Mfrs. L. & H. Co. 3.
Wade, Mfrs. L. & H. Co. 3.
Conaway, Carnegie Gas Co. 4.
Carman, Carnegie Gas Co. 2.
McGuffie, Carnegie Gas Co. 1.
Peterson, Johns Gas Co. 4.
Marshall, Hope C. & R. Co. 2.
Sellers, Phila. Oil Co. 1.
Sprague, Annex Oil Co. 1.
Brown, Hope C. & R. Co. 2.
McIntyre, Carnegie Gas Co. 2.
McIntyre, Wiser Oil Co. 2.
Thompson, Amer. O. D. Co. 1.
Lyons, Carnegie Gas Co. 2.
Hardman, Trainer & Ash 3.
Miller, Victor O. & G. Co. 1.
Morgan, Mfrs. L. & H. Co. 1.
Rigs, 8; wells drilling, 18; total, 26.

MARSHALL COUNTY
Wells Drilling
Logsdon, Marshall-Preston O. Co. 1.
Yoyho, Hope Gas Co. 1.
Mason heirs, St. Joseph O. & Gas Co. 1.
McCaskey, Mfrs. L. & H. Co. 2.
Hughes, N. G. Co. of W. Va. 1.
Schenk, Mfrs. L. & H. Co. 5.
Markey, Decum Dev. Co. 3.
Rigs, 0; wells drilling, 7; total, 7.

BROOKE COUNTY
Wells Drilling
Ashton, Myers & Co. 1.
Rigs, 0; wells drilling, 1; total, 1.

DODDRIDGE COUNTY
Rigs
Rawlings, Pigott & Shinn 1.
Coleman, Carter Oil Co. 2.
Maxwell, Carter Oil Co. 31.
Allen, Trainer & Summers 2.
Drainer, J. B. Travis 2.
Roberts, Keystone Oil Co. 4.
Hardman, Jennings Oil Co. 60.
Wells Drilling
Maxwell, Columbian Carbon Co. 50.
Smith, Carter Oil Co. 5.
Barket, Trainer & Travis 4.
Adams, Engle Run Oil Co. 1.
Rigs, 7; wells drilling, 4; total, 11.

RITCHIE COUNTY
Rigs
Huff, Hope Gas Co. 1.
Perrin, Hope Gas Co. 1.
Adams, Carter Oil Co. 1.
Tharp, Carnegie Gas Co. 6.
Smith, Carnegie Gas Co. 1.
Miller, So. P. O. Co. 2.
Day, Star Oil Co. 2.
Mason, Star Oil Co. 1.
Stansburg, Wright Oil Co. 3, 4.
Kincaid, Wright Oil Co. 1.
Mason, I. O. G. P. Co. 4.
Dotson, I. O. G. P. Co. 2.
Lemon, So. P. O. Co. 41.
Lambert, So. P. O. Co. 9.
Woods, A. B. Moore & Co. 2.
Miller heirs, Chemical Oil Co. 2.
West Va. Tract, Whitwood Oil Co. 29.
West Va. Tract, W. T. Wyatt 14.
Wilson, Hope Gas Co. 2.
Hudson heirs, Continental Oil Co. 3.
Mason, Mason Oil Co. 2.
Cassiday, D. French & Co. 1.
Wells Drilling
Lawrence, Hays & Roberts 3.
Jonas, Coss O. & G. Co. 3.
Hogue, Carnegie Gas Co. 1.
Haywood, Premier Glass Co. 2.
Doak, Pentze & Schrader 1.
Rutherford heirs, Hope Gas Co. 1.
Garrison, Griffin Pro. Co. 1.
Daubenspeck, A. F. Daubenspeck 3.
Mason, So. P. O. Co. 1.
Nebrough, Ark Fuel Oil Co. 4.
Monts, L. Cokley 1.
Vincent, O. F. Vincent Co. 1.
Riggs, M. Lucas 1.
Spencer, Starr Oil Co. 5.
Hayden, Hope Gas Co. 1.
Watson, So. P. O. Co. 1.
Bell, Starr Oil Co. 2.
Bride, Hope Gas Co. 1.
Goff, Andrew Goff 2.
Prather, Hope Gas Co. 1.
Goff, Hope Gas Co. 2.
Baker, Lynch & Co. 1.
Pritchard, Ira Cox 1.
Mason, I. O. & G. Co. 3.
Mason, I. O. & G. Co. 2.
Smith, Hope C. & R. Co. 6.
Rigs, 23; wells drilling, 26; total, 49.

GILMER COUNTY
Rigs
Goff, So. P. O. Co. 8.
Hardman, So. P. O. Co. 6, 7.
Ellis, So. P. O. Co. 3.
Bush-Holt, So. P. O. Co. 2.
J. J. Hardman, Hope C. & R. Co. 4.
Gainer, Phila. Oil Co. 1.
Bush, Sinking Creek O. & G. Co. 2.
Bell, So. P. O. Co. 1.
Scott, So. P. O. Co. 1.
King, Chartiess Oil Co. 1.
Wells Drilling
Gainer, So. P. O. Co. 1.
Linger, Phila. Oil Co. 2.
Tierney, J. A. Tierney 3.
Miller heirs, C. W. McCall & Co. 2.
Bennett heirs, W. T. Bickel 3.
Hiney, Carnegie Gas Co. 1.
Thompson, Hope Gas Co. 1.
Burke, Phila. Oil Co. 1.
Rigs, 11; wells drilling, 8; total, 19.

BRAXTON COUNTY
Rigs
Boggs, Big Otter O. & G. Co. 1.
Lockhart, W. Va. C. Gas Co. 1.
Snider, Phila. Oil Co. 1.
Wells Drilling
Fletcher Staut, P. R. O. & G. 1.
Whitsell heirs, Phila. Oil Co. 1.
Engle, W. Va. C. G. Co. 2.
Priest, Hazel Atlas Glass Co. 1.
Pratt, Phila. Oil Co. 1.
Rigs, 3; wells drilling, 5; total, 8.

WIRT COUNTY
Wells Drilling
Depue-McClung, Simms Oil Co. 1.
Hopkins, Roberts Bros. 1.
Rigs, 0; wells drilling, 2; total, 2.

WOOD COUNTY
Rigs
Brown heirs, Park Bowser 2.
Rest, White Sand Oil Co. 3.
Pope, E. E. Pope 2.
Marshall, Rexroad & Co. 1.
Wells Drilling
Stone, W. L. Stephens O. Co. 3.
Allman, Sleppy Oil Co. 15.
Frazier, Earl & Bennett 1.
Volcanic Tract, Clark O. Co. & Mines 51
Volcanic Tract, H. C. & R. Co. 4.
West, Big Sand Oil Co. 1.
Rigs, 4; wells drilling, 6; total, 10.

PLEASANTS COUNTY
Rigs
Dailey, White & Casper 1.
Wells Drilling
Elder, White & Rea 1.
Hooper, Ellenor O. & G. Co. 1.
Rigs, 1; wells drilling, 2; total, 3.

ROANE COUNTY
Rigs
Larch, O. F. O. Co. 19.
Craig, Co. P. O. Co. 19.
Newhart, Heck Oil Co. 1.
Davis, Heck Oil Co. 3.
Simms heirs, Heck Oil Co. 1.
Anderson, Fisher Oil Co. 3.
Wells Drilling
Taylor, Taylor Bros. & Co. 1.
Hunt, Empire Pet. Co. 1.
Ferrell, G. L. Cabot 1.
Poole, S. A. Simons & Co. 2.
Brown, Brown Farm Oil Co. 2.
Rigs, 6; wells drilling, 5; total, 11.

CALHOUN COUNTY
Rigs
Stump, Charles & Co. 1.
Despard, H. C. & R. Co. 1.
Wells Drilling
Mitchell, M. F. Crowley 3.
Roberts, Pell & Newman, Federal O. & G. Co. 26.
Scott, Hope Gas Co. 1.
Rigs, 2; wells drilling, 1; total, 3.

LINCOLN COUNTY
Wells Drilling
Pauley, A. C. Lawrence 8.
Rigs, 0; wells drilling, 1; total, 1.

CLAY COUNTY
Rigs
King heirs, White Sand Pet. Co. 3.
Rigs, 1; wells drilling, 0; total, 1.

KANAWHA COUNTY
Rigs
Robertson heirs, U. F. G. Co. 1.
Roane Land Co., Allegheny O. & G. Co 2.
Fry, K. C. O. & G. Co. 1.
G. K. P.. & L. Co., Owens B. & M. Co. 15.
Ward heirs, U. F. G. Co. 26.
Imperial Coal Co., U. F. G. Co. 38.
Wells Drilling
Koontz-Osborne U. F. G. Co. 17.
Koontz-Osborne, U. F. G. Co. 18.
Koontz-Osborne, U. F. G. Co. 19.
Taylor, U. F. G. Co. 1.
Koontz, U. F. G. Co. 2.
Good, U. F. G. Co. 7.
Osborne Bros., Cosmos Carbon Co. 13.
G. K. P. L. & C. Co., Owens B. & M. Co. 17.
Williams Coal Co., Pure Oil Co. 136.
Rigs, 6; wells drilling, 9; total, 15.

BOONE COUNTY
Rigs
Williams Coal Co., Pure Oil Co. 203.
Mullens, Owens B. & M. Co. 1.
Thompson, Owens B. & M. Co. 1.
Wells Drilling
Williams Coal Co., Pure Oil Co. 198.
Coal River M. Co., Owens B. & M. Co. 18.
Bedford, Owens B. & M. Co. 4.
Rigs, 3; wells drilling, 3; total, 6.

CABELL COUNTY
Wells Drilling
Duty, Duty O. & G. Co. 1.
Kendall, Commercial Gas Co. 1.
Kirtley, Commercial Gas Co. 1.
Davis, Aetna O. & G. Co. 1.
Bias, Aetna O. & G. Co. 1.
Jordon, Harshbarger O. & G. Co. 1.
Rigs, 0; wells drilling, 6; total, 6.

RALEIGH COUNTY
Rigs
Rowland Land Co., Fisher Oil Co. 4.
Rigs, 1; wells drilling, 0; total, 1.

WAYNE COUNTY
Wells Drilling
Guyandotte Land Co., C. G. & E. Co. 383.
Rigs, 0; wells drilling 1; total, 1.

PRESTON COUNTY
Rigs
Gordon, Hope C. & R. Co. 1.
Rigs, 1; wells drilling, 0; total, 1.

LICKING COUNTY
Rigs
Cooperrider, Midland Oil Co. 2.
Melich Bros., Athey Oil Co. 4.
Bounds, Spindler & Donaldson 5.
Rector, O. F. S. Co. 5.
Merchant, Carter Oil Co. 2.
Wells Drilling
Melich Bros., Athey Oil Co. 5.
Bowser, Midland Oil Co. 1.
Francis, W. W. Wehrle 1.
Romine, Carter Oil Co. 2.
Meacham, W. W. & A. T. Wehrle 1.
Fetty, W. W. & A. T. Wehrle 2.
Motherspaw, Soltz, Gabby & Co. 3.
Rigs, 5; wells drilling, 7; total, 12.

COSHOCTON COUNTY
Rigs
Wolford, Spindler & Co. 4.
McKee, Spindler, Dooland & Co. 4.
Ashcraft, Leonard O. & G. Co. 4.
J. Ashcraft, Leonard O. & G. Co. 5.
Martin, Carter Oil Co. 1.
Wells Drilling
Norris, Pure Oil Co. 1.
Rigs, 5; wells drilling, 1; total, 6.

FAIRFIELD COUNTY
Rigs
Weaver, Carter Oil Co. 1.
McCandlish, Blume O. & G. Co. 1.
Seifert, Ohio Falls O. & G. Co. 1.
Nixon, Montana O. & G. Co. 1.
Kennedy, Montana O. & G. Co. 5.
Wells Drilling
Hull, Thompson & Co. 1.
Brandt, Hall O. & G. Co. 1.
Barr, O. F. S. Co. 1.
Capeeti, Carter Oil Co. 2.
Young, Montana O. & G. Co. 2.
Miller, Ruff & Co. 2.
McVeigh, Carter Oil Co. 2.
Krayer, Weirrick & Nolder 4.
Hyde, Rushville O. & G. Co. 1.
Rigs, 5; wells drilling, 9; total, 14.

HOLMES COUNTY
Rigs
Smith, Pure Oil Co. 4.
Lowe, East O. & G. Co. 1.
Clinage, O. F. S. Co. 1.
Keiser, N. W. Pet. Co. 8.
Wells Drilling
Close, Cline, Extine & Co. 1.
Dindley, Cline, Extine & Co. 1.
Fendricks, Medina O. & G. Co. 1.
McMillan, Medina O. & G. Co. 1.
Conner, Medina O. & G. Co. 1.
Conner, East O. G. Co. 1.
Jarvis, East O. G. Co. 1.
Sowash, East O. G. Co. 1.
Graham, Pure Oil Co. 2.
Craig, O. F. S. Co. 1.
Rigs, 4; wells drilling, 10; total, 14.

KNOX COUNTY
Wells Drilling
Grover Heirs, Cora Clark 2, 3.
Grier, A. F. Heisey Co. 1.
Wier, S. J. Denbow & Co. 1.
Pipes, Reno Oil Co. 2.
Miser, Preston Oil Co. 1.
Wells drilling, 6.

NOBLE COUNTY
Rigs
Murphy, O. F. S. Co. 3.
Wells Drilling
Shilling, L. A. Patton 1.
Gildew, S. L. Wolf 5.
Francis, U. Nau & Co. 3.
Rigs, 1; wells drilling, 3; total, 4.

MORGAN COUNTY
Wells Drilling
Rairden, Pennova O. & G. Co. 11.
Wells drilling, 1.

MEIGS COUNTY
Rigs
Holter, Pure Oil Co. 1.
Ihle, Barner Oil Co. 2.

Wells Drilling
Mus, O. F. S. Co. 1.
Holter, Juffler Oil Co. 1.
Rigs, 2; wells drilling, 2; total, 4.

WASHINGTON COUNTY
Wells Drilling
Mendenhall, Elsie Martin & Co. 1.
Matheny, F. H. Leidecer & Co. 3.
Roe, C. E. Hammond & Co. 7.
Cochran, F. W. Cochran 3.
Templeton Heirs, Jas. Baldwin & Co. 1.
Goodman Bros., Bedilion & Co. 3.
Rosenbush, Otto Becker & Co. 3.
Johnston, Votlingham & Co. 4.
Holland, J. C. Carney & Co. 1.
Daniels, W. F. Meister & Co. 17.
Radenbach, S. A. Taylor & Co. 4.
Wells drilling, 11.

HARRISON COUNTY
Wells Drilling
Duswald, Sincell & Co. 2.
Wells drilling, 1.

SOUTHEASTERN OHIO
WELLS COMPLETED
MONROE COUNTY

Harrington, Thornily & Poole 1	dry
Wells completed	1
McVey, Carter Oil Co. 1	gas
Harren, Gallaher & Co. 1	gas
Danford, D. U. Powell 1	dry
Dillon, Johnson Oil Co. 1	2
Hartshorn, Brister Oil Co. 1	2
Lowe, Highman & Co. 1	dry
Wells completed	6
Production	4
Dry	2
Gas	2

PERRY COUNTY

Holland, E. Keller & Co. 72	2
McCourtney, Southern Oil Co. 7	55
Comiskey, Denman & Son 12	4
Smith, Ralston & Maynard 9	1
Wells completed	4
Production	62

HOCKING COUNTY

Martin-Adcock, Kelch Bros. 4	1
Tracey Est., Kachelmacher Est. 10	80
Stacey, Sharren & Son 3	gas
Lowery, Sharren & Son 1	dry
Stout, Pure Oil Co. 1	dry
Smith, C. Melcher 1	dry
Dawley heirs, O. F. S. Co. 4	gas
Hysell, Westbrook & Co. 1	dry
N. F. P. Co. C. H. Bell & Co. 3	gas
Stone, Preston Oil Co. 3	130
Wells completed	10
Production	210
Dry	2
Gas	2

MUSKINGUM COUNTY

Shaw, Pure Oil Co. 2	75
Montgomery, Pure Oil Co. 3	100
Knapp, Sun Oil Co. 3	dry
Baringer, Pure Oil Co. 2	50

LICKING COUNTY

Dickson, Neeley-Clover Co. 1	25
Boy Scout, Ralph Bros. 4	3
Bounds, Spindler & Donaldson 4	4
Reddick, W. W. & A. T. Wehrle 3	80
Walcott, W. W. & A. T. Wehrle 2	dry
Jones, J. F. Bebout & Co. 1	45
Wells completed	6
Production	157
Dry	1

COSHOCTON COUNTY

Mizer, Ark. N. G. Co. 1	2
Giffin, O. F. S. Co. 1	2
Wells completed	2
Production	4
Dry	0

FAIRFIELD COUNTY

Elder, Lincoln O. & G. Co. 1	6
Householder, Planet O. & G. Co. 1	dry
Wells completed	2
Production	6
Dry	1

HOLMES COUNTY

Gendlesberger, Medina O. & G. Co. 1	gas
Nowells, E. O. G. Co. 1	25
Carpenter, Pure Oil Co. 2	10
Wells completed	3
Production	35
Gas	1

KNOX COUNTY

Green, Snyder & Roherer 5	3
Miller, I. J. Denbow & Co. 25	3
Miller, F. Marion Snyder 10	2
Miller, F. Marion Snyder 11	3
Hugh Miller, Curran Oil Co. 2	2
Elliott Schooles, Halbrain & Weed 3	1
Horn, Young & Curren 1	dry
Dodd, J. J. Bell & Co. 2	gas
Groves heirs, Cora Clark 2	2
Snively, East O. P. & R. Co. 3	4
Wells completed	10
Production	20
Dry	1
Gas	1

NOBLE COUNTY

Brown, White & Co. 3	1
Lowe, Bonwell & Co. 1	dry
Weisent, Felix Gerst Co. 4	3
Broedell, Chas. Robinson 4	1
Noll, Casper, Schott & Co. 1	dry
Wells completed	5
Production	5
Dry	1

MORGAN COUNTY

Davis, J. W. Davis 22	2
Rairdan, Pennova C. & G. Co. 10	2
Wells completed	2
Production	4

MEIGS COUNTY

Krinter, Pure Oil Co. 1	15
Wells completed	1
Production	15

WASHINGTON COUNTY

Eddy, J. E. Shankland & Co. 4	gas
West, Otis Reckard & Co. 4	dry
Newlen, Huling Est. 9	1
Hurland, E. Clark, Jr., 31	5
Scott, Erbs & Payne 1	dry
Haines, Dailey & Co. 2	1
Goodman Bros. Bedilion & Co. 2	dry
Hendershot, Parkersburg O. Co. 2	1
Murray, Beeson & Athey 4	dry
Stacey, J. Bogard & Co. 1	dry
Lauer, W. H. Lohman & Co. 2	1
Decker, J. T. Dillon 6	10
Wells completed	12
Production	19
Dry	5
Gas	1

JEFFERSON COUNTY

Vermillion, Smithfield O. & G. Co. 1	gas
Sprague, Peters & Heath 1	10
Wells completed	2
Production	10

HARRISON COUNTY

Heavlin, S. Elliott 8	gas
Gas	1

CARROLL COUNTY

Taylor, N. G. Co. of W. Va. 5	1
Taylor, N. G. Co. of W. Va., 6	1
Miskel, A. L. Curry & Co. 6	5
Wells completed	3
Production	7

MONROE COUNTY
Rigs
Greene, Hendershot Oil Co. 3.
Briggs, Calebaugh & Co. 3.
Clauges, Paulus & Co. 1.
Starr, Staudt & Co. 2.
Wells Drilling
Briggs, Harry Binegar & Co. 1.
Howell, Bentz O. & G. Co. 1.
Griffin, Carter Oil Co. 1.
Bierklurkt, J. Gallaher 1.
Scott, Sprague Oil Co. 3.
Rigs, 4; wells drilling, 5; total, 9.

PERRY COUNTY
Rigs
Sunday Creek Coal Co., Perry Pet. Co. 2.
Solt, Carter Oil Co. 5.
Burns Heirs, Edgar Denman & Co. 4.
Griggs, Carter Oil Co. 2.
Miser, Carter Oil Co. 7.
Wells Drilling
Trimmer, Ohio P. S. Co. 4.
Kearnhorn-Dunlap, Carter Oil Co. 6.
Sunday Creek C. C., Sunday C. C. Co. 113
Sunday Creek C. Co., Carter Oil 2.
Rigs, 5; wells drilling, 4, total, 9.

HOCKING COUNTY
Rigs
Tritch, Carter Oil C. 6.
Johnston, Griffin Prod. Co. 6.
Cobb-Bradley, Nypenno O. & G. Co. 11.
Wells Drilling
Feathers, Gordon Oil Co. 5.
Chutes, Kelch Bros. 1.
Sunday C. C. Co., Sunday C. C. Co. 114.
Greenlet, Ark. Nat. Gas Co. 1.
Trobridge, Preston Oil Co. 5.
Rigs, 3; wells drilling, 5; total, 8.

MUSKINGUM COUNTY
Wells Drilling
McGinnis, White Hill & Co. 1.
Dozer, Swingle O. & G. Co. 1.
Whitehouse, Ralph Bros. 2.
Wells drilling, 3.

CENTRAL OHIO

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Licking	0	0	0	0	1	0	1
Fairfield	0	0	0	0	0	4	4
Knox	4	100	0	3	2	2	4
Ashland	11	0	6	5	2	9	11
Medina	10	0	3	7	4	15	19
Lorain	2	0	1	1	0	10	10
Wayne	14	25	7	6	11	35	46
Richland	19	0	3	16	1	15	16
Vinton	1	0	1	0	1	0	1
Hocking	5	0	0	5	4	2	6
Holmes	8	48	3	2	10	16	26
Coshocton	0	0	0	0	1	1	2
Jackson	4	0	0	4	5	8	13
Athens	5	0	1	4	2	5	7
Meigs	0	0	0	0	2	1	3
Gallia	1	0	1	0	0	0	0
Lawrence	1	0	1	0	0	0	0
Huron	0	0	0	10	0	3	3
Total Nov.	95	173	27	63	46	126	172
Total Oct.	51	30	15	33	41	98	159
Difference	44	143	12	30	15	28	13

WELLS COMPLETED
KNOX COUNTY

Brown—S. D. Reed, East Ohio Gas 1	gas
Clay—Ben Ross, Hcisey Gas 4	gas
S. B. Dodd, Grit O. & G. 1	gas
Jackson—Fretch Veatch, American Oil 1	100
Wells completed	4
Oil wells	1
Production	100
Gas	3

ASHLAND COUNTY

Hanover—Fred Fechter, Logan Gas 1	gas
Mary H. Sellers, Logan Gas 1	gas
K. Ackerman, East Ohio Gas 1	gas
Wm. Black, Ohio Fuel Gas 1	gas
Jacob Sellers, Ohio Fuel Gas 1	dry
Wm. Fisher, Ohio Fuel Gas 1	dry
Mohican—C. A. Pearce, Logan Gas 1	dry
Orange—Eliza Berkey, Logan Gas 1	dry
Alex Phillips, Logan Gas 3	gas
Jackson—H. L. Weiler, Ohio Fuel Gas 1	dry
Miflin—Hoover heirs, Geiger & Barnhart 1	dry
Wells completed	11
Dry	6
Gas	5

MEDINA COUNTY
Liverpool—Andrew Nilges, Logan Gas 2 gas
Chatham—C. G. Chapman, East Ohio Gas 4 gas
C. G. Chapman, Vale Oil 35 gas
Medina—Wm. Schaber, Ohio Fuel Gas 1 gas
York—E. H. Fabrion, Logan Gas 2 gas
H. G. Wolf, Logan Gas 1 dry
J. A. Wolf, Ohio Fuel Gas 3 dry
Chas. Wolfe, Central Ohio Gas 1 gas
Geo. Starr, Central Ohio Gas 1 gas
Chas. Wolfe, Central Ohio Gas 2 dry
Wells completed 10
Dry 3
Gas 7

LORAIN COUNTY
Grafton—E. & E. Rice, Ohio Fuel Gas 1 gas
Lagrange—A. Bring, Ohio Fuel Gas 1 dry
Wells completed 2
Dry 1
Gas 1

WAYNE COUNTY
Congress—J. A. Lucas, Logan Gas 2 gas
Wayne—F. Pressler, Logan Gas 1 gas
C. W. Yates, Ohio Fuel Gas 1 dry
M. M. Zimmerman, Ohio Fuel Gas 1 dry
Cannan—O. G. Pinkley, Logan Gas 2 dry
F. H. McAfee, Ohio Fuel Gas 1 dry
T. V. Rennecker, Ohio Fuel Gas 2 dry
F. J. Lehman, Ohio Fuel Gas 1 gas
J. H. Blocher, Klise-Eckstein-McCann Co. 1 25
L. H. Grunder, Klise-Eckstein-McCann Co. 1 dry
R. N. Nosker, Central Ohio Gas 1 gas
R. S. Grunder, Bowers & Co. 1 dry
D. Wiles, Creston Gas 1 gas
Joe Powers, Mayes & Co. 1 gas
Wells completed 14
Oil wells 1
Production 26
Dry 7
Gas 6

RICHLAND COUNTY
Cass—Niffen, Coyle & Matthes 1, 2 gas
Wattman, Chas. E. Ozier 1, 2, 3 gas
Sam Seeman, Chas. E. Ozier & Co. 1, 2, 3, 4, 5 gas
Marinque, Ben Hart 1 gas
Dan Miller, Hulse & Koontz 1 gas
Nugent, Hulse & Koontz 1 gas
D. Guthrie, Brown, Henline & Warren 1 gas
W. S. Champion, Moore & Wright 1 gas
Sarah Seeman, Geo. VanTilburg 1 gas
Frank Fackler, Geo. VanTilburg 1 dry
Bloomingrove—J. Zellers, Moore, Wright & Thompson 1 dry
Troy—Thos. Dunshee, Lexington O. & G. 1 dry
Wells completed 19
Gas wells 16
Dry 3

VINTON COUNTY
Richland—H. M. Whitcraft, Ohio Fuel Gas 1 dry

HOCKING COUNTY
Benton—J. & C. Cain, Logan Gas 1 gas
C. H. Rathbone, Logan Gas 1 gas
J. L. Mauk, Logan Gas 3 gas
E. O. Pettitt, Ohio Fuel Gas 2 gas
C. W. Davis, Ohio Fuel Gas 1 gas
Wells completed 5
Gas 5

HOLMES COUNTY
Ripley—B. W. Todd, Logan Gas 1 gas
A. Weimer, East Ohio Gas 1 dry
J. B. Shoup, Ohio Fuel Gas 1 8
Hardy—Jos. Gindelsperger, Central Ohio Gas 1 gas
Washington—M. Lozier, Logan Gas 1 dry
Hefflefinger, Logan Gas 1 dry
Prairie—E. P. Nowels, East Ohio Gas 1 30
Sam LaFever, Ohio Oil 1 10
Wells completed 8
Oil wells 3
Production 48
Dry 5
Gas 2

JACKSON COUNTY
Washington—J. W. Herberger, Ohio Fuel Gas 4 gas
Coal—S. Stephenson, Ohio Fuel Gas 1 gas
W. E. Dixon, Ohio Fuel Supply 1 gas
Franklin—Wm. Steele, Ohio Fuel Supply 2 gas
Wells completed 4
Gas 4

ATHENS COUNTY
Carthage—H. W. Barnhart, Ohio Fuel Supply 1 gas
D. Dunlavey, Bradford O. & G. 1, 2 gas
Amos—W. R. Phillips, Ohio Fuel Supply 1 dry
Troy—L. H. Duffield, The McBride Co. 1 gas
Wells completed 5
Dry 1
Gas 4

GALLIA COUNTY
Cheshire—P. Steenberger, Ohio Fuel Supply 1 dry

LAWRENCE COUNTY
Washington—L. D. York, Ohio Fuel Supply 1 dry

HURON COUNTY
Ripley—Reber, Coyle & Matthews 1, 2, 3, 4, 5 gas
Gilger, Geo. S. Lacknett 1 gas
S. Noble, Hulse & Koontz 1, 2, 3, 4 gas
Wells completed 10
Gas 10

LICKING COUNTY
Rigs
Union—Della Embrey, Logan Gas 1.

FAIRFIELD COUNTY
Wells Drilling
Walnut—S. McKenney, Logan Gas 4.
Roscoe Helmick, Ohio Fuel Gas 2.
Rush Creek—Alta R. Barr, Ohio Fuel Gas 1.
Richland—F. E. Drum, Ohio Fuel Gas 1.
Wells drilling, 4.

KNOX COUNTY
Rigs
Brown—Donald Colopy, East Ohio Gas 1.
C. L. Horn, East Ohio Gas 1.
Wells Drilling
Brown—Frederick Motz, East Ohio Gas 1.
Butler—W. B. Griffin, Ohio Fuel Gas 1.
Rigs, 2; wells drilling, 2; total, 4.

ASHLAND COUNTY
Rigs
Hanover—Emanuel Kick, East Ohio Gas 1.
Ruggles—John F. Henry, Logan Gas 1.
Wells Drilling
Hanover—Rose Derr, Logan Gas 2.
L. E. Cady, Logan Gas 1.
J. B. Date, East Ohio Gas 5.
F. M. Date, East Ohio Gas 1.
J. F. Jones, Ohio Fuel Gas 1.
Andy Morris, Ohio Fuel Gas 1.
Mohican—T. R. Glenn, Ohio Fuel Gas 1.
Orange—Wm. Monteith, Logan Gas 3.
Mifflin—Koontz, Geo. VanTilburg 2.
Rigs, 2; wells drilling, 9; total, 11.

MEDINA COUNTY
Rigs
Liverpool—Kate Hornsmyer, Ohio Fuel Gas 2.
Chatham—Robert Ritchie, East Ohio Gas 1.
Litchfield—Ellen C. Rice, East Ohio Gas 1.
York—George Hinman, Ohio Fuel Gas 1.
Wells Drilling
Liverpool—W. M. Nilges, Logan Gas 2.
Lafayette—G. W. Carston, Ohio Fuel Gas 1.
Westfield—Lewis H. Jones, Daugherty Bros. 1.
Litchfield—Roman Walter, Logan Gas 1.
Hickley—Henry Harris, Ohio Fuel Gas 1.
York—Myra Brogan, Logan Gas 2.
Henry C. Speith, Logan Gas 3.
Fred Gayer, Logan Gas 3.
Allen K. Weisz, Logan Gas 2.
P. Diehl, Logan Gas 1.
P. J. Thompson, Hulse & Koontz 3.
George Acker, Ohio Fuel Gas 3, 4.
Mary C. Pierce, Ohio Fuel Gas 2.
Chas. Wolfe 103, Central Ohio Gas 1.
Rigs, 4; wells drilling, 15; total, 19.

LORAIN COUNTY
Wells Drilling
Penfield—L. & C. Wolfe, C. W. Shaffer 1, 3, 4, 7, 8.
Grafton—C. F. Shaffer, East Ohio Gas 1.
George Schafer, Ohio Fuel Gas 1.
Columbia—Richard Futt, Ohio Fuel Gas 1.
Clara J. Elder, Ohio Fuel Gas 1.
Avon Lake Village—Frank J. Krebs, Winer Oil 1.
Wells drilling, 10.

WAYNE COUNTY
Rigs
Wayne—Edmonds-Fike, Logan Gas 1.
Chas. Pressler, Ohio Fuel Gas 1.
Cannan—J. W. Scholl, Logan Gas 1.
T. A. Armstrong, Logan Gas 3.
Chas. Kollert, Logan Gas 1.
S. Whonsettler, Bert Harder & Co. 1.
S. M. White, Ohio Fuel Gas 1.
J. F. Bowers, Ohio Fuel Gas 1.
Auretta Barker, Ohio Fuel Gas 1.
Plain—Kate Brown, East Ohio Gas 2.
C. O. Ports, East Ohio Gas. 4.
Wells Drilling
Wooster—W. M., Ohio Oil 1.
Franklin—Newt Jones, Ohio Oil 1.
W. Redett, Klise-Eckstein-McCann 1.
East Union—H. B. Jameson, Ohio Oil 4.
Congress—J. & A. Gindelsperger, Hulse & Koontz 1.
John Ferguson, Ohio Fuel Gas 1.
J. M. Marsh, John Gaut & Co. 1.
Milton—Dan Graber, East Ohio Gas 1.
Raymond Graybill, East Ohio Gas 1.
Wayne—L. Durstine, Logan Gas 1.
C. L. Alleshouse, Logan Gas 1.
M. S. Buckholtz, Ohio Fuel Gas 2.
A. Bucher, Ohio Fuel Gas 1.
W. & M. Reese, Burton, Morgan & Co. 1.
Chippewa—Pasquale Volpel, East Ohio Gas 2.
Cannan—W. F. Funk, Logan Gas 2, 3.
W. & M. Notestone, Logan Gas 3.
J. & C. Irwin, Logan Gas 2.
S. C. Jackson, Ohio Fuel Gas 1.
O. G. Pinkley, Ohio Fuel Gas 1.
D. V. Rowe, Ohio Fuel Gas 2.
R. H. Kemerer, Ohio Fuel Gas 1.
H. E. Geyer, Central Ohio Gas 1.
Mary Lee, Central Ohio Gas 1.
A. Smith, Brinkerhoff & Co. 2.
C. B. Whonsettler, Bowers & Co. 1.
A. J. Lance, Bowers & Co. 1.
S. Eby, C. S. Eby & Co. 1.
Z. T. Reese, Reese Gas 4.
J. R. Stuckey, Mayes & Co. 2.
Frank Ensminger, G. C. Miracle & Co. 1.
Plain—C. C. Hootman, Logan Gas 1.
S. Garn, Logan Gas 1.
Ora Flickinger, Logan Gas 1.
Rigs, 11; wells drilling, 35; total, 46.

RICHLAND COUNTY
Rigs
Monroe—M. E. Schrack, Ohio Fuel Gas 1.
Wells Drilling
Cass—Steele-McBride, O. J. Davidson 1.
D. Guthrie, Brown, Henline & Warner 1.
A. F. Kinsel, J. Wilts 1.
Boyd Hammon, Mitchart & Noah 1.
A. Nelson, Bert Hancock & Co. 1.
W. S. Champion, Moore & Wright 2.
Niffen, Coyle & Matthews 3.
Porter, Geo. VanTilburg 1.
Myers, Hulse & Koontz 1.
Barnes, Cupples & Ozier 1.
D. Malone, Smith & Wiedeman 1.
Tully Barnes, Weideman & Glass 1.
Bloomingrove—A. Firestone, Hancock & Co. 1.
A. Morton, O. J. Davidson 1.
J. Myers, Barnhart, Geiger & Barry 1.
Rigs, 1; wells drilling, 15; total, 16.

VINTON COUNTY
Rigs
Clinton—Mgdt. C. Foster, Ohio Fuel Gas 1.

HOCKING COUNTY
Rigs
Benton—Eliza Davis, Ohio Fuel Gas 1.
A. L. Unger, Logan Gas 3.
George Amerine, Logan Gas 2.
Perry—Jas. A. Friend, Ohio Fuel Gas 1.
Wells Drilling
Benton—J. L. Mauk, Logan Gas 4.

Perry—Alice McClelland, Ohio Fuel Gas 1.
Rigs, 4; wells drilling, 2; total, 6.

HOLMES COUNTY
Rigs
Monroe—Milton J. Lowe, East Ohio Gas 2.
H. E. Clinage, Ohio Fuel Gas 1.
Oscar Korns, Ohio Fuel Gas 1.
Elva R. Martin, Central Ohio Gas 1.
Jess Powers, Central Ohio Gas 1.
S. R. Snyder, Central Ohio Gas 1.
Ida A. Bower, Central Ohio Gas 2.
Hardy—Jac. Uhl, East Ohio Gas 2.
John Gindelsperger, Central Ohio Gas 1.
Prairie—L. A. Sowash, East Ohio Gas 1.
Wells Drilling
Ripley—G. W. Todd, Logan Gas 1.
E. & A. Scott, East Ohio Gas 2.
Martin A Martin, East Ohio Gas 1.
Monroe—Thos. P. Connor, East Ohio Gas 1.
C. G. Jarvis, East Ohio Gas 2.
J. A. Baker, East Ohio Gas 2.
Thos. Connor, Central Ohio Gas 1.
Alex W. Fendrick, Central Ohio Gas 1.
Howard McMillen, Central Ohio Gas 1.
Hardy—J. R. Findley, Klise-Eckstein-McCann 1.
Jesse B. Close, Klise-Eckstein-McCann 1.
Washington—H. G. Huffman, Logan Gas 1.
Prairie—Ellen Metcalf, Logan Gas 1.
F. & I. Phillips, Ohio Oil 1.
Cornelia Lacky, Ohio Fuel Gas 2, 3.
Rigs, 10; wells drilling, 16; total, 26.

COSHOCTON COUNTY
Rigs
Newcastle—Wm. Johnson, Logan Gas 1.
Wells Drilling
Newcastle—Martin Miser, Logan Gas 1.
Rigs, 1; wells drilling, 1; total, 2.

JACKSON COUNTY
Rigs
Franklin—Clarissa Scurlock, Ohio Fuel Supply 1.
Minnie Stephenson, Ohio Fuel Supply 1.
Lick—Jeff Buckley, Ohio Fuel Supply 1.
J. H. Harper, Ohio Fuel Supply 1.
Mary Emmons, Ohio Fuel Supply 1.
Wells Drilling
Washington—Stephen Tripp, Ohio Fuel Gas 2, 3.
Minnie Walker, Ohio Fuel Gas 3.
Mary E. Tripp, Ohio Fuel Gas 1.
J. W. Marsh, Ohio Fuel Gas 1.
Milton—A. S. Dempsey, Ohio Fuel Gas 1.
N. W. Neary, Ohio Fuel Gas 1.
Lick—Crafton McGhee, Ohio Fuel Supply 1.
Rigs, 5; wells drilling, 8; total, 13.

ATHENS COUNTY
Rigs
Carthage—Thos. Bond, Ohio Fuel Supply 1.
Rome—H. McGraw, Rose & Blosser 2.
Wells Drilling
Carthage—W. S. & M. Dye, Logan Gas 3.
Arthur Cole, Logan Gas 1.
H. W. Barnhart, Ohio Fuel Supply 2.
C. Basin, Kemf & Bailey 5.
Rome—Fred Maniken, Roel Run O. & G. 1.
Rigs, 2; wells drilling, 5; total, 7.

MEIGS COUNTY
Rigs
Salisbury—A. J. Smith, Ohio Fuel Supply 1.
Rutledge—Bartlett Parker, Ohio Fuel Gas 1.
Wells Drilling
Sulton—David M. Nease, Ohio Fuel Gas 1.
Rigs, 2; wells drilling, 1; total, 3.

HURON COUNTY
Wells Drilling
Ripley—Hays Noble, unknown 1.
Emma Hale, O. J. Davidson 1.
Gilger, George S. Lacknett 2.
Wells drilling, 3.

LIMA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wood	12	146	3	0	2	9	11
Hancock	10	262	2	0	0	8	8
Allen	7	142	0	0	0	5	5
Auglaize	4	42	1	0	0	2	2
Sandusky	0	6	0	0	1	2	3
Mercer	11	104	1	0	0	6	6
Van Wert	0	0	0	0	1	0	1
Seneca	2	2	1	0	0	3	3
Lucas	0	0	0	0	0	1	1
Ottawa	3	24	0	0	0	2	2
Darke	2	7	0	0	0	4	4
Hardin	0	0	0	0	0	1	1
Total Nov.	51	729	8	0	4	43	47
Total Oct.	60	735	13	4	3	68	71
Difference	9	6	5	4	1	25	24

WELLS COMPLETED

WOOD COUNTY
Montgomery—O. A. Diver, H. Kinzey 4. 10
Plain—A. J. Schauweker No. 2, Ohio Oil 5 30
W. C. Blystone, R. C. Shuler & Co. 4 5
Roe heirs, Allen Oil 1 8
Roe heirs, Allen Oil 2 10
A Avery, Ohio Oil 1, 2, 6, 7, 8, 10, 11 abd
S. L. Mitchell, Ohio Oil 8 abd
Henry—Lawrence Cable, Ohio Oil 66... 5
Bloom—J. A. Moyer, Ohio Oil 19 dry
D. S. Clark, Heacock Oil 18 15
Liberty—C. Knaggs, Ohio Oil 1, 2, 4, 6. abd
Geo. Powell, Ohio Oil 1, 5 abd
Dan Mercer 143, Ohio Oil 15 abd
Middleton—W. E. Bruce, Five Points Oil 5 13
Perrysburg—Carpenter, Ohio Oil 1 dry
C. S. Spilker, Davis & Carroll 1 50
Troy—H. Linke, Troy O. & G. 10 dry
Wells completed 12
Production 146
Dry 3
Abandoned 18

HANCOCK COUNTY
Allen—B. Bare, Ohio Oil 5, 6 abd
Cass—J. E. Hudson, Ohio Oil 16, 18... abd
Jac. Stecker, Ohio Oil 14 abd
Liberty—S. W. Marvin, Ohio Oil 20.... abd
E. E. Spoon, Spoon & Co. 1 dry
J. B. Wagner, A. N. Bryson & Co. 1. dry
Pleasants—Caine Henry, Bath Township Oil 2 100
Union—Phil Gehron, Beatty-Nickle Oil 8 20
P. J. Heldman, Beatty-Nickle Oil 13. 10
Phil Schwinn, Ohio Oil 15 30
Eagle—J. McClelland, B. Porter & Co. 1 12
J. H. Haley, B. Porter & Co. 16 35
Lem Aurand, Porter & Hovis 9 30
Lem Aurand, Porter & Hovis 10 25
Wells completed 10
Production 262
Dry 2
Abandoned 6

ALLEN COUNTY
Bath—Elias Lewis, C. A. Peavey & Co. 7 20
Elizabeth Gray, Ohio Oil 2, 5, 6, 7... abd
Hauthorn, Ohio Oil 1, 3, 4, 5, 6, 9, 11, 12, 13, 14, 15, 16 abd
Spencer—Mary E. Gross, South Fork Oil 1 15
Marion—Fred Miller, Federal Oil 1.... 12
E. Youngpeter, Federal Oil 1 10
E. Youngpeter, Federal Oil 2 20
Phil Heltner, Federal Oil 3 45
Frank Etzkorn, National Pet. Corp. 2 20
John Lucius, Federal Oil 1 abd
Wells completed 7
Production 142
Abandoned 17

AUGLAIZE COUNTY
Douchouquet—J. Zink, Lang & Kirk 1. dry
Meckling & Co., R. S. Cheuvront 1, 2 abd
Logan—L. Bowersock, Wesley Sprague 5 25
Alice Young, W. B. Jack 2 15
F. J. Roby, Bend O. & G. 6 2
Wells completed 4
Production 42
Dry 1
Abandoned 2

SANDUSKY COUNTY
Woodville—J. A. Recker, D. Molgard & Co. 1, 2 abd

MERCER COUNTY
Recovery—Newcomer, M. F. Newcomer & Co. 5 3
Union—Summer-Drake, Stelzer & McClure 1 abd
Granville—J. Longenkamp, Thompson & Co. 2 15
Steve Wendel, V. G. Lowery & Co. 4 16
F. Remmell, E. G. Henderson & Co. 1 15
Hopewell—J. Tilton, June Oil 1 15
Adam Brown, C. M. Mayhugh 1 10
John Regdantz, B. Y. J. Oil 1 4
Jefferson—J. Downey, June Oil 1 10
Gibson—J. B. Myers, A. W. Neely & Co. 1 dry
Peter Waurins, A. J. Weideman & Co. 1 1
Franklin—S. Evans, E. Anderson & Co. 1 15
Wells completed 11
Production 104
Dry 1
Abandoned 1

VAN WERT COUNTY
Jennings—Lewis Mack, E. A. Kuhns & Co. 7 abd
Willshire—Wm. Buchner, Ohio Oil 2, 3, 4, 6, 8 abd
T. C. Maddox, Jno. W. McCray 1.... abd
J. B. Eaton, N. T. Kuhns & Co. 3, 4, 5 abd
Ernest Deitrick, N. T. Kuhns & Co. 1 abd
Abandoned 11

SENECA COUNTY
Clinton—Ida Geyer, Arthur Geyer & Co. 2
Pleasants—Frank Hoover, E. R. Edson & Son 1 dry
Wells completed 2
Production 2
Dry 1

LUCAS COUNTY
Oregon—J. Jacobs, Andrews Oil 2 abd
Mary T. Friend, Andrews Oil 2 abd
Abandoned 3

OTTAWA COUNTY
Harris—Belle Clay, Zorn-Hornung Co. 6 11
Wm. V. Schott, Zorn-Hornung Co. 6.. 7
E. Sarnes, Scott Oil 1 6
Allen—Lottie Shessler, John Weber 2... abd
Mary Bringe, John Weber 3 abd
Robt. Jochlin, Mountler Bros. 5, 7... abd
Wells completed 3
Production 24
Abandoned 4

DARKE COUNTY
Mississinewa—J. Staghler, E. G., and Jas. Henderson 1 5
Jackson—J. Walls, Carter Oil 1 2
Wells completed 2
Production 7

WOOD COUNTY
Rigs
Plain—Pinert-Munn, Paragon Ref. 24.
H. Goodenough, Hulse & Koontz 2.
Wells Drilling
Plain—W. C. Blystone, R. C. Shuler & Co. 5.
Bloom—George Grant, George Grant 4.
N. W. Nat. Gas, Ohio Oil 47.
Middleton—W. E. Bruce, Five Points Oil 6.
Webster—W. Oberdecker, Johnson & Grolle 2.
Lake—Emil Berndt, C. F. Zeising & Co. 3.
Fred Schulte, Lantz, Gregg & Co. 4.
Perrysburg—D. Lahy, W. F. Johnson 6.
Center — Metzger, Northwestern Ohio Nat. Gas 1.
Rigs, 2; wells drilling, 9; total, 11.

HANCOCK COUNTY
Wells Drilling
Allen—Hy Overholt, Overholt Oil 2.
E. C. Showman, Dave King, Jr., & Co. 17.
Pleasants—Caine-Henry, Bath Township Oil 3.
Union—Henry Schwinn, Harpst Bros. 9.
Eagle—Jake Fellers, Fuller & Co. 13.
Lem Aurand, Porter & Hovis 11, 12.
Biglick—J. B. Moore, Cochran & Moore 2.
Wells drilling, 8.

ALLEN COUNTY
Wells Drilling
Spencer—Mathias Etgen, Indian Oil 4.
Bailey-Morey, Ohio Oil 7.
Ed Reynolds, South Fork Oil 1.
Marion—Fred Miller, Federal Oil 2.
Ed Youngpeter, Federal Oil 3.
Wells drilling, 5.

AUGLAIZE COUNTY
Wells Drilling
Douchouquet—Meckling & Co., R. S. Cheuvront 4.
Noble—W. Thomas, Bend, O. & G. 3.
Wells drilling, 2.

SANDUSKY COUNTY
Rigs
Washington—J. C. Bergman, Paragon Ref. 6.
Wells Drilling
Jackson—F. Rollins, F. Rollins 3.
Scott—P. Willey, Adams O. & G. 4.
Rigs, 1; wells drilling, 2; total, 3.

MERCER COUNTY
Wells Drilling
Recovery—J. Fullenkamp, Rice & Milligan 2.
Granville—Steve Wendel, V. G. Lowery & Co. 5.
J. Scheiser, H. G. Neely & Co. 1.
B. Post, H. J. Thompson & Co. 2.
Hopewell—Perry Miller, June Oil 4.
Franklin—J. Strausburg, E. Anderson & Co. 1.
Wells drilling, 6.

VAN WERT COUNTY
Rigs
York—J. M. Strothers, C. E. Elliott 1.
Wells Drilling
Jennings—Amos Burnett, Stanley Oil 1.
Rigs, 1; wells drilling, 1; total, 2.

SENECA COUNTY
Wells Drilling
Eden—H. H. Seiple, Sun Co. 2, 3.
Clinton—Frank Baldwin, Arthur Geyer & Co. 1.
Wells drilling, 3.

LUCAS COUNTY
Wells Drilling
Monclova—Wm. Black, Swan Creek O. & G. 2.

OTTAWA COUNTY
Wells Drilling
Harris—Wm. V. Schott, Zorn-Hornung Co. 7.
John Bristoe, Bristoe O. & G. 1.
Wells drilling, 2.

DARKE COUNTY
Wells Drilling
Mississinewa—C. Ludy, Hance & Co. 1.
York—Fetterman, Pyramid Oil 1.
Wabash—Coons, Kinney & Co. 1.
Patterson—C. W. Bowman, M. P. Colt & Co. 1.
Wells drilling, 4.

HARDIN COUNTY
Wells Drilling
Roundhead—A. F. Harpster, Smith Oil 1.

ILLINOIS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Clark	2	40	1	0	0	4	4
Cumberland	0	0	0	0	0	1	1
Crawford	1	0	0	1	0	3	3
Lawrence	3	105	0	0	0	0	0
Jasper	1	0	1	0	0	0	0
Monroe	1	4	0	0	0	4	4
Coles	0	0	0	0	0	1	1
Wabash	0	0	0	0	3	3	6
Jackson	0	0	0	0	0	2	2
Jefferson	0	0	0	0	0	1	1
Union	0	0	0	0	0	1	1
Morgan	4	0	0	4	0	0	0
Total Nov.	12	149	2	5	3	20	23
Total Oct.	11	74	6	5	3	20	23
Difference	1	75	4	0	0	0	0

CLARK COUNTY
Wells Completed
Martinsville—J. D. Nichols, Wm. Carper 1 dry
S. M. Brooman, Ohio Oil 10 40
Wells completed 2
Production 40
Dry 1
Gas 1

CRAWFORD COUNTY
Oblong—L. Houghton, Liberty O. & G. 19 gas

LAWRENCE COUNTY
Dennison—G. L. Barnett, Ohio Oil 11.. 1
J. F. Snyder, Central Refg. 3 3
M. McCloskey, International O. & G. 12 100
J. Lingenfelder, Kewanee O. & G. 10 abd
Bridgeport—H. Clay Thorn, Ohio Oil 37 abd
Wells completed 3
Production 105
Abandoned 2

JASPER COUNTY
Hunt City—C. H. Madden, Grant Jessup 1 dry

MONROE COUNTY
Waterloo—Dena Acker 81, Kaskaskia Oil 7 4

MORGAN COUNTY
Jacksonville—Section 3-15-9—Harris, C. P. Irwin & Co. 1, 2 gas
Section 10-15-9—C. P. Irwin 1 gas
Section 2-15-9—C. P. Irwin & Co. 1.. gas
Wells completed 4
Production 0
Gas 4
Dry 0

CLARK COUNTY
Wells Drilling
Parker—Elder, Cincho Oil 4.
Martinsville—Wm. Carper, Trenton Rock Oil 2.
Lewis Webb, Arthur & Co. 1.
Johnson—Lewis Hedges, Mumford Oil 1.
Wells drilling, 4.

CUMBERLAND COUNTY
Wells Drilling
Sumpter—J. Brewer, Illinois Oil 1.

CRAWFORD COUNTY
Wells Drilling
Robinson—N. C. Boyd, Fred Burns & Co. 3.
Honey Creek—L. N. Tohill, James Pease & Co. 1.
Montgomery—L. B. Smith, Phipps & Blosser 1.
Wells drilling, 3.

MONROE COUNTY
Wells Drilling
Waterloo—Dena Acker 81, Kaskaskia Oil 8.
Dena Acker 40, Henry Schneider & Co. 5.
C. Rueck, Tucker & Co. 5.
C. Wismuth, East St. Louis Drg. 8.
Wells drilling, 4.

COLES COUNTY
Wells Drilling
Hutton—Cephus Goble, C. J. Appleman & Co. 1.

WABASH COUNTY
Rigs
Wabash—A. Hosmer, Joe Young & Co. 1.
G. D. Smith, Joe Young & Co. 6.
Della Wright, Hartman & Parrott 4.
Wells Drilling
Wabash—E. K. Adams, Harry E. Risley & Co. 2.
Friendsville—Chas. Schrader, Sharon Price & Co. 1.
Mt. Carmel—Veiham, George Porter & Co. 1.
Rigs, 3; wells drilling, 3; total, 6.

JACKSON COUNTY
Wells Drilling
Bradley—McComb-Williams, Mid-Egypt O & G. 4.
Carter, Mid-Egypt O. & G. 9.
Wells drilling, 2.

JEFFERSON COUNTY
Wells Drilling
Pendleton—R. I. Estes, Opdyke Oil 1.

UNION COUNTY
Wells Drilling
Bald Knob—W. McSmith 1.

INDIANA FIELD

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Jay	1	6	0	0	0	11	11
Adams	2	4	0	0	0	0	0
Grant	1	15	0	0	0	0	0
Gibson	2	20	1	0	0	6	6
Pike	3	0	2	1	0	0	0
Sullivan	0	0	0	0	0	5	5
Knox	0	0	0	0	1	1	2
Total Nov.	9	45	3	1	1	23	24
Total Oct.	14	291	3	1	0	30	30
Difference	5	246	0	0	1	7	6

WELLS COUNTY
Wells Completed
Nottingham—R. Y. Taylor, Geo. D. Roberts 5 abd
Mary Blocher, Geo. D. Roberts 3.... abd
R. A. Waldron, Ohio Oil, Ind. Div. 5 abd
D. Bryan Hrs. Ohio Oil, Ind. Div. 27, 34, 35, 36, 37 abd
Geo. Updegraft, Ohio Oil, Ind. Div. 14, 17, 20, 21 abd
Abandoned 12

JAY COUNTY
Bear Creek—W. McMichaels, Smethers & Co. 4 6
Penn—Elias Thomas, Willison & Hartley, 1, 2 abd
Jackson—G. A. Richison, Fostoria Oil, 7, 12, 16, 18 abd
Wells completed 1
Production 6
Abandoned 6

ADAMS COUNTY
Blue Creek—C. J. Jones, Rockford Oil 2 2
Hartford—D. Pontius, O. C. Taylor 1.. abd
A. Ensley, Ohio Oil, Ind. Div. 1, 2, 3, 4, 6 abd
Wabash—Wm. Aspy, Aspy O. & G. 1 .. 2
Wells completed 2
Production 4
Abandoned 6

GRANT COUNTY
Pleasants—Merlwain, Nickelson & Co. 4 15
Jefferson—Stout-Hower, Broyles & Beckman 1, 3 abd
Wells completed 1
Production 15
Abandoned 2

RANDOLPH COUNTY
Jackson—C. Hoover, Ohio Oil, Ind. Div. 2 abd

GIBSON COUNTY
Patoka—H. Yarger, Ohio Oil, Ind. Div. 1 dry
Center—E. Whiting, Murphy Oil 3 20
Wells completed 3
Production 20
Dry 1

PIKE COUNTY
Madison—C. Dougan, Merrifield, Trus. 1 dry
Monroe—S. Burnett, Consolidated O. & Dev. 1 dry
Clay—John Ford, Bement-Indian Refg. - gas
Wells completed 3
Dry 3
Gas 1
Production 0

JAY COUNTY
Wells Drilling
Bear Creek—S. Saunders, Sub-Trenton Oil 1.
South Noble—Cull, Willmott & Thompson 1.
Pike—J. Redmond, Redmond & Co. 8.
A. Ritenour, Masters & Reese 12.
C. Rathbun, Masters, Bundy & Co. 8.
Obryan, Bolyard & Co. 7.
Penn—Mary Grissell, C. F. Wilson & Co. 4.
Madison—Gillinger, J. E. Thompson & Co. 1.
Iliff, Meusel & Co. 1.

Kemp, Anderson & Co. 1.
Kuder, John A. Bell 1.
Wells drilling, 11.

GIBSON COUNTY
Wells Drilling

Washington—C. Dawson, Lobowitz & Co. 2.
Ira Siefers, Lynch & Co. 1.
Center—W. VanMaster, Gray & Co. 1.
S. A. Adams, Joe Griggs & Co. 1.
White River—W. F. Chapman, Eagle Oil 1.
T. A. White, Perry Tichenour & Co. 1.
Wells drilling, 6.

SULLIVAN COUNTY
Wells Drilling

Turman—Albert E. Poe, H. & S. Oil 6.
T. Carrothers, Dugger Parties 2.
Gill—Cyntha Huff, Fred Bays 1.
Fairbanks—J. T. Hunnary, Chas. Hollingsworth & Co. 1.
Jackson—L. Baldridge, Stewart Oil 1.
Wells drilling, 5.

KNOX COUNTY
Rigs

Harrison—Ida B. Doty, Perry Andrews 2.
Wells Drilling
Harrison—T. S. Barlow, Perry Andrews 1.
Rigs, 1; wells drilling, 1; total, 2.

W. KENTUCKY-TENN.

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wayne	3	80	1	0	0	8	8
Powell	0	0	0	0	0	5	5
Estill	2	30	0	0	0	4	4
Lee	0	0	0	0	0	2	2
Lawrence-Johnson	16	434	0	0	0	37	37
Johnson-Magoffin	14	101	1	1	0	30	30
Allen	31	167	17	0	0	17	17
Warren	19	311	4	0	3	27	30
Barren	8	67	0	0	0	19	19
Simpson	2	12	0	0	0	3	3
Cumberland-Monroe	22	280	12	3	0	27	27
Clinton	0	0	0	0	0	2	2
Russell	0	0	0	0	0	7	7
Owensboro	7	164	0	0	0	19	19
Hopkins	2	50	1	0	0	2	2
Owsley	0	0	0	0	0	6	6
McLean	1	0	1	0	0	1	1
Metcalf	0	0	0	0	0	11	11
Henderson	2	0	2	0	0	1	1
Greenup	1	0	1	0	0	0	0
Crittenden	1	0	1	0	0	0	0
Rowan	0	0	0	0	0	1	1
Breathitt	0	0	0	0	0	1	1
Montgomery	0	0	0	0	0	2	2
Grayson	0	0	0	0	0	1	1
Elliott	0	0	0	0	0	3	3
Laurel	0	0	0	0	0	2	2
Hardin	0	0	0	0	0	2	2
Pike	0	0	0	0	0	1	1
Knott	1	3	0	0	0	1	1
Floyd	1	100	0	0	0	3	3
Marion	0	0	0	0	0	1	1
Martin	1	0	0	1	0	0	0
Harlan	0	0	0	0	1	0	1
Todd	0	0	0	0	0	1	1
Adair	0	0	0	0	0	1	1
Owen	0	0	0	0	0	2	2
Tennessee	8	19	6	0	2	26	28
Mississippi	0	0	0	0	3	17	20
Alabama	0	0	0	0	0	11	11
Georgia	0	0	0	0	1	4	5
Florida	0	0	0	0	6	9	15
Total Nov.	142	1,818	47	5	16	317	333
Total Oct.	150	2,201	48	5	13	310	323
Difference	8	383	1	0	3	7	10

KENTUCKY-TENNESSEE
WAYNE COUNTY
Wells Completed

Monticello—Coffey Hrs., Bell Bros. 1 .. dry
Denney, C. M. Work 5 5
Bell Hrs., Ross Wetzel 5 75

Wells completed 3
Production 80
Dry 1

ESTILL COUNTY

Irvine—M. Smith, Coombs & Co. 2..... 20
Law, Amsler & Downs 10 10

Wells completed 2
Production 30
Dry 0
Gas 0

LAWRENCE-JOHNSON COUNTIES

Louisa—Levisa Skaggs, Union G. & O. 13 10
J. J. Gambill, Union G. & O. 28.... 25
Jas. H. Skaggs, Union G. & O. 18.... 75
P. P. Holbrook, Union G. & O. 23.. 20
P. P. Holbrook, Union G. & O. 24.... 80
J. C. Skaggs, Union G. & O. 2 20
Laura Skaggs, Union G. & O. 5 3
Andrew Skaggs, Union G. & O. 12... 50
L. H. Skaggs, Union G. & O. 4..... 25
Proctor Sparks, Union G. & O. 16.... 60
J. H. Holbrook, Union G. & O. 9.... 25
Sena Hamilton, Cumberland Pet. 8.. 4
J. J. Skaggs, Cumberland Pet. 2.... 2
James Skaggs, Union G. & O. 17.... 25
J. C. Gillam, 15-A, Indian-Tex Pet. 3 5
Geo. Gillam No. 2, Indian-Tex. Pet 5 5

Wells completed 16
Production 434
Dry 0
Gas 0

JOHNSON-MAGOFFIN COUNTIES

Paintsville—Milt Wheeler, Carter Oil 9 5
D. J. Vanderpool, Petroleum Ex. 1... dry
J. D. Adams, R. G. Gillespie 1 3
W. P. Adams, R. G. Gillespie 1 4
Sam Blanton 125-a, R. G. Gillespie 9 10
J. J. Bliss, R. G. Gillespie 2 5
H. C. Conley, Hudson & Collins 13.... 4
M. S. Ross, Carroll O. & G. 1..... gas
H. Cantrell e-40, Atlantic O. Prod. 10 10
Frank Conley 160, S. D. Wheeler, trustee, 10 10
Cleve Salyer, Bed Rock Oil 1 15
J. H. Arnett 60-a, Arnett & Patrick 2 15
Salyer heirs and Oliver Jenkins 2..... 10
Mark Bays, E. E. White 9 10

Wells completed 14
Production 101
Dry 1
Gas 1

ALLEN COUNTY

Scottsville—Morehead, 66 Oil Synd. 7 .. dry
Motley, Thompson & Co. 9 ..... dry
Grubbs, Gayman & Co. 7 18
W. H. Heavington, Dye Bros. 1 ..... dry
MasFishburn, Allen County Oil 14, 15 ..... dry
T. Williams, F. J. Chipman 1 3
Ayres, Kiser & Co. 12 2
F. Gibson, M. B. W. Synd. 7 10
L. Motley, Turner & English 15 15
L. Motley, Turner & English 16.... 15
L. Motley, Turner & English 17, 19.. dry
L. Motley, Turner & English 18..... 3
L. Motley, Turner & English 20 2
Widow Guy, Wentz & Co. 1, 2 ..... dry
Deering, Chicago-Ky. O. Synd 6 60
P. Gibson, T. Sheridan & Co. 4 20
F. Gibson, T. Sheridan & Co. 3 .... dry
T. C. Tinsley, Vic DeCaigney 1 .... dry
Meador, Hall & Co. 1 ..... dry
Buchanan, White Plains Oil 17..... 7
Buchanan, White Plains Oil 18..... dry
D. W. Willoughby, D. B. Willoughby 2 ..... dry
Lyles, Thompson O. & G. ..... dry
T. R. Wilson, Turner & English 1 .. 2
S. H. Dennis, Friends Oil 2 ..... dry
T. Calvert, Brendall Oil 13 10
Graves, Sandusky Oil 2 10
Graves, Sandusky Oil 3 ..... dry

Wells completed 31
Production 167
Dry 17

WARREN COUNTY

Bowling Green—M. Reeves, Martsolf Prod. 2 15
J. Kelly, Mountain States Oil 9 ..... dry
Sid Petty, Leonard & Co. 7 3
G. Potter, Tichner & Co. 2 ..... dry
Willoughby Lane, Nottulyn Oil 3 .... dry
W. A. Gott, Plantation Cons. Oil 7 .. 20
W. A. Gott, Plantation Cons. Oil 2 .. dry
G. Smith, Welde & Co. 1 50
Ben Price, Loman, Bowling & Co. 2 40
A. Shields, Brannon & Stewart 2 7
Dr. Francis, G. C. Foster & Co. 2 .. 40
Sebe Smith 40-a, E. M. Treat & Co. 2 50
Slaughter, J. J. Fort 1 5
Young, Makeever Bros. 4 40
J. Hobson Hrs., M. B. Williams 3.... 15
M. M. Ennis, Moran O. & Ref. 10.. 15
Hobson, Clark & Co. 1 3
Davison, W. F. Coast Oil 4 3

Wells completed 19
Production 311
Dry 4
Gas 0

BARREN COUNTY

Glasgow—Childress, Maey & Kopel 3 .. 12
Hearston, Lew Emery Jr., & Son 5.. 3
Hearston, Lew Emery, Jr., & Son 6.. 3
Jordon, Shriver & Co. 1 10
Adams, Fred Moore 4 10
H. Travis, Fred Moore 1 17
Widow Rickie, Norris, Warder & Sansom 2 7
Summers, Horace Coombs 1 5

Wells completed 8
Production 67
Dry 0
Gas 0

SIMPSON COUNTY

Franklin—Wiley Powell, J. H. McClurkin 1 2
Hogan, R. G. Small 3 10

Wells completed 2
Production 12
Dry 0
Gas 0

CUMBERLAND-MONROE COUNTIES

Neely's Ferry—L. Smith, Ridenour & Stewart 1 ..... dry
W. Bybee, Adams & Eagle 1 ..... dry
P. Huddleston, W. S. Raydure 1 15
Hood, W. S. Raydure 1 60
G. W. Coop, W. S. Raydure 2..... 100
C. E. Groce, Seaboard Oil 1 ..... dry
R. E. Williams, Kanawna Oil 1 75
W. R. Arms, Chenault & Williams 1.. dry
Turn Smith, Reynolds & Bushaw 1 .. dry
Peter Coe, Bushaw & Co. 1 ..... dry
A. Williams, C. P. Tannehill 1 ..... gas
J. P. Poindexter, Young Oil 1 10
Smith, Bushaw & Co. 2 ..... dry
J. I. Scott, Lynch & Co. 1 ..... dry
S. Riddle, Hook, Ross & Wise 1.... dry
Newt Ray, Louisville G. & Electric 1 gas
G. P. Turner, Graf & Siggins 1..... dry
J. C. Wood, Louisville G. & Electric 1 dry
Bailey, Turner & Kearns 1 15
Bailey, Turner & Kearns 2 ..... gas
J. Crawford, Thompson & Co. 1.... 5
Murphy, Whitmore Oil 1 ..... dry

Wells completed 22
Production 280
Dry 12
Gas 3

OWENSBORO DISTRICT

Owensboro—E. Bickett, Newton Oil 1 4
Ed. Baise, Kiser & Thompson 2..... 6
Helm, Leeper Oil 2 75
T. Johnson, Boop & McDonald 3 9
V. Miller, C. E. Daugherty 2 25
B. Miller, Damron Bros. 3 35
Unknown, Indian Hill Oil 1 10

Wells completed 7
Production 164
Gas 0
Dry 0

HOPKINS COUNTY

Madisonville—Holleman, Cooper Flash Oil 5 50
Kingston, Pleasant View Oil 1 ..... dry

Wells completed 2
Production 50
Dry 1
Gas 0

McLEAN COUNTY

Beech Grove—C. Cline, Petroleum Extraction 1 1

HENDERSON COUNTY

Henderson—Nau, H. Y. Clay 1 ..... dry
Epperson, Railroad Oil 1 ..... dry

Wells completed 2
Production 0
Dry 2
Gas 0

GREENUP COUNTY

Greenup—Lee Evans, Pet. Exploration 1 dry

CRITTENDEN COUNTY

Tolma—Sam C. Hall & Co. 1 ..... dry

KNOTT COUNTY

Hindman—Miles Jones, Pennsgrade O. & G. 1 3

FLOYD COUNTY

Hueyville—Near Drift, Swiss Oil Corp. 1 100

MARTIN COUNTY

Inez—West Virginia Parties 1 ..... gas

TENNESSEE
CLAY COUNTY

Celina—L. Bebery, Biggerstaff & Co. 1 dry
Overstreet, Buchaw & Co. 2 ..... dry
Widow Hargrove, Tenn-National O. & G. 1 ..... dry
E. Morrow, Peters & Co. 1 ..... dry
Kyle, Union Oil Trust 1 15
Williams, DaFoe & Co. 2 4

Wells completed 6
Production 13
Dry 4
Gas 0

LAWRENCE COUNTY

Lawrenceburg—Stribbling, Moran Oil 3 dry

WARREN COUNTY

McMinnville—Foster, Ky-Tenn O. & G. 1 dry

WAYNE COUNTY
Wells Drilling

Monticello—G. H. Snyder, Barr & Griffin 5.
L. N. Morrow, Beaver Pet. 4.
A. W. Campbell, Clark O. & G. 5.
Francis Baker, Dr. Doolittle & Co. 1.
Tom Stinson, J. R. Johnson & Co. 1.
Ira Gregory, C. E. Daugherty & Co. 2.
John Koontz, Carter & Betram 2.
Geo Phipps, Geo. W. Smith 3.
Wells drilling, 8.

POWELL COUNTY
Wells Drilling

Slade—Virden, Thirteen Oil 4.
Sam Hall, Powell Oil 8.
Townsend, E. E. Edwards 2.
E. D. Curtis, Knight & Biemer 1.
Caz Mullins, Hupp & Duff 4.
Wells drilling, 5.

ESTILL COUNTY
Wells Drilling

Irvine—Paul Rogers, Wood Oil 1.
Sam Miller, Smith, Clark & Co. 2.
Joe Frazier, Swiss O. Corp. 2.
Art Campbell, Superior O. Corp. 2.
Wells drilling, 4.

LEE COUNTY
Wells Drilling

Beattyville—J. T. Hare, The Petroleum Oil 4.
Lucy Watkins, J. H. Sallee 8.
Wells drilling, 2.

LAWRENCE-JOHNSON COUNTIES
Wells Drilling

Louisa—Levisa Skaggs, Union G. & O. 14.
P. P. Holbrook, Union G. & O. 18, 25.
J. C. Gillam No. 2, Union G. & O. 2.
L. V. Skaggs, Union G. & O. 3.
Sena Skaggs, Union G. & O. 1.
C. H. Fyfee, Union G. & O. 1.
Harrison Bailey, Union G. & O. 3.
L. P. Ferguson, Union G. & O. 3.
L. P. Ferguson, Union G. & O. 6, 7.
James Diles, Union G. & O. 2.
E. H. Skaggs, Union G. & O. 4.
Proctor Sparks, Union G. & O. 17.
Lewis Skaggs, Union G. & O. 12.
J. J. Gambill, Union G. & O. 23.
Herbert Skaggs No. 2, Union G. & O. 3.
Wm. Boggs, Cumberland Pet. 4.
Leo Skaggs, Jr., Cumberland Pet. 7.
Leo Skaggs, Sr., Cumberland Pet. 6.
Sena Hamilton, Cumberland Pet. 6.
J. J. Skaggs, Cumberland Pet. 3.
Geo. Gillam No. 2, Indian-Tex. Pet. 6, 7.
J. C. Gillam 15-a, Indian-Tex. Pet. 4.
Chas. Osborn, Skaggs, Miller & Co. 1.
R. M. Sparks, Boston-S. W. Oil 21.
Nap N. Williams, Boston-S. W. Oil 3.
M. Bailey, Freudenburh & Co. 2.
C. Williams, J. E. McIntyre & Co. 6.
Milt Williams, Central Ky. Gas 4.
Will Gillam, Indian-Tex. Pet. 4.
J. C. Gillam No. 2, Indian-Tex. Pet. 7.
Matilda Meek, Carter Oil 2.
Robt. Fyffe, Pluto Oil 3.
W. H. Kelly, Mid South Oil 2.
S. V. Skaggs, Figley, Day & Co. 5.
Ira Lester, Fred Stone & Co. 3.
Wells drilling, 37.

JOHNSON-MAGOFFIN COUNTIES
Wells Drilling

Paintsville—Wm. Salyer, Carter Oil 2.
W. S. Adams, Petroleum Explo. 21.
Kelly Adams, Petroleum Explo. 3.
Tollie Conley, R. G. Gillespie 3.
S. & J. Blanton, R. G. Gillespie 8.
Darius Conley, R. G. Gillespie 10.
Sam Blanton 125, R. G. Gillespie 11.
J. J. Bliss, R. G. Gillespie 3.
C. Roark, Dave Browning & Co. 3.
M. E. Coffey, Southwestern Pet. 32.
J. Cochran, Little Paint Oil 2.
L. M. Kimbleton, Little Paint Oil 2.
Elam Powers, Fields & Magee 1.
Sam Blanton, Palmer Bros. 8.
Gil Blanton, Meade & Stafford 2.
W. M. Fulkerson, Orrell & Thompson 1.
Mary Franklin, George & Touma 4.
S. McKenzie, Coast Oil 5.
Manford Blanton, Structure Oil 23.
Harman, Oliver Jenkins 6.
J. H. Arnett, Bed Rock Oil 13.
Bishop Patrick, Swill Oil Corp. 7.
Bud Gullett, Jas. J. Parker 1.
Jos. Wright, Jas. J. Parker 1.
Jos. Wright, Jas. J. Parker 1.
Frank Conley 66, Wheeler, Patton & Co. 12.
Raleigh Salyer No. 2, Burning Fork O. Synd. 1.
A. J. Tackett, C. W. Wheeler 7, 8.
Cleveland Salyer, Bed Rock Oil 2.
Wells drilling, 30.

ALLEN COUNTY
Wells Drilling

Scottsville—Tracey, W. B. Reed & Co. 2.
G. C. Carter, Fishburn Oil 1.
P. Gibson, T. A. Sheridan & Co. 5, 6, 7.
K. Stark, Stark & Stark 1.
R. H. Good, C. R. Borah 3.
F. Gibson No. 2, M. W. B. Synd. 2.
Ayres, Kiser & Co. 12.
Barlow, G. J. Wahl 5.
Landrum, Herpalhamer & Co. 1.
T. R. Wilson, T. R. Wilson 5.
Heffington, Vic DeCaigney 5.
B. Willoughby, Watterson & Co. 1.
Cherry, Alpin & Co. 6.
Lyles, Pearson & Co. 2.
Sim Cooper, Hill & Co. 1.
Wells drilling, 17.

WARREN COUNTY
Rigs

Bowling Green—J. Isbell, Wood Oil 18.
T. L. Upton, J. L. Harper & Co. 5.
Young, Makeever Bros. 5.
Wells Drilling
Bowling Green—Elkins, Cunningham & Co. 1.
Gillespie, Gillespie Oil 4.
McLemore, C. L. Turner 3.
Watkins, G. W. Pyle 1.
Dr. Francis, G. C. Foster & Co. 3, 4.
R. Oliver, Wood River Oil 1.
A. McGinnis, F. W. Evans 1.
Montague, Reed & Co. 1.
J. Jones, Jackson Oil 4.
W. R. Hinton, P. H. Lavelle 3.
Hamblin, Creamer & Co. 3.
Hugh Hill, Kopler & Co. 1.
W. A. Gott, Plantation Cons. Oil 9, 10.
Wick White, J. J. Fort 2.
A. Shields, Bannon & Stewart 3.
W. A. Gott, Plantation Cons. Oil 9, 10.
Wick White, J. J. Fort 2.
A. Shields, Bannon & Stewart 3.
W. A. Gott 100-a, Ohio Fuel Oil 14.
Sebe Smith, E. M. Treat & Co. 15, 16.
Price-Hall, Ruby Consolidated Oil 3, 4.
Gillespie, Loman & Rehm 4.
Wood, White & Foster 1.
Higginbotham, Makeever Bros. 3.
Poor Farm, Roy Hogan 1.
J. F. Young, Pa. Oil Synd. 6.
Rigs, 3; wells drilling, 27; total, 30.

BARREN COUNTY
Wells Drilling

Glasgow—Smith, Smith-Oliver Oil 2.
Mansfield, Houchins Leashold 4.
Madison, Houchins Leashold 1.
Warder, Elam O. & G. 7.
Bybee, Cave City O. & G. 2.
Lyons, Cave City O. & G. 1.
H. Myers, Trigg & Scott 1.
L. Summers, South St. Paul O. & G. 4.
Vincent, Summer Valley O. & G. 2.
Wood, Warren-Daniels Oil 1.
W. E. Steffey, Unknown 1.
Prewton, Federal Oil 3.
Scott, Fred Moore 1.
Childress, Maxey & Kopel 4.
Childress, Richardson & Maxey 7.
L. Walker, C. E. Smith 5.
K. Nichols, Smith & Son 2.
Widow Richie, Norris, Warder & Sansom 3.
Jordan, Shriver & Co. 2.
Wells drilling, 19.

SIMPSON COUNTY
Wells Drilling

Franklin—Holland, Phelps & Co. 3.
D. E. Slate, J. H. McClurkin & Co. 1.
J. R. Harris, Perdue & Co. 1.
Wells drilling, 3.

CUMBERLAND-MONROE COUNTIES
Wells Drilling

Neely's Ferry—C. Chapman, J. J. White & Co. 1.
M. Keith, Carroll O. & G. 1.
East Fork Creek, Turner & Co. 1.
Terry Humble, Star Oil 1.
J. C. Hume, Judio Oil 3.
L. S. Blythe, South Kentucky Oil 1.
B. Bedford, Holmes & Co. 1.
Smith, E. M. Treat & Co. 1.
Kidwell, Fred Henegan & Co. 1.
P. Huddleston, W. S. Raydure 2.
S. Riddle, W. S. Raydure 2.
S. Smith, W. S. Raydure 1.
M. L. Spear, Paragon Dev. 1.
C. Groce, Seaboard Oil 2.
C. Strange, Shady Side Oil 1.
J. R. Poindexter, Young Oil 2.
Wm. Dowell, Atlantic O. Prod. 1.
Unknown, Louisville G. & Electric 1.
Wendell, Synder & Spats 1.
Sam Bunton, Martsolf Fuel 2.
Davis, Wilcox Bros. 1.
S. Riddle, Hook, Ross & Wise 2.
E. Baker, Dug. St. Clair 1.
Victoria King, Dug St. Clair 1.
A. Huddleston, Morris Pet. 2.
J. B. Chappell, W. G. Bowles & Co. 1.
L. C. Blythe, Bonnell, Sloan & Zook 1.
Wells drilling, 27.

CLINTON COUNTY
Wells Drilling

Albany—Wes Wallace, A. J. Early & Co. 1.
Dr. Ryan, Shipley Oil 1.
Wells drilling, 2.

RUSSELL COUNTY
Wells Drilling

Creelsboro—Coffee, Carnahan Oil 15.
W. C. Dalton, Carnahan Oil 1, 2.
F. Garner, Carnahan Oil 1.
Ed. Campbell, Armstrong & Co. 3.
Campbell Bros., Armstrong & Co. 1.
E. Mann, J. G. Smith 2.
Wells drilling, 7.

OWENSBORO DISTRICT
Wells Drilling

Owensboro—Curry, Archer & Co. 2.
D. Spurrier, Newton Oil 1.
L. Payne, Newton Oil 2.
Vogiers, Newton Oil & Daugherty 1.
J. Morrison, Newton Oil & Daugherty 4.
Payne 58-a, B. Thompson 1.
C. Payne, Randolph & Co. 1.
Brown, Newman Oil 1.
Howard, Wood Oil 1.
O. T. Burdette, White & Co. 1.
At Narrows, McCoombs Prod. & Ref. 1.

At Narrows, J. W. Reigle 1.
Taylor, Chicago Pet. Synd. 1.
Abe Howe, Dearborn Oil 2.
Chambers, Kentucky Oil 1.
Bailey, Leeper & Roesner 1.
Eisler, Consolidated Oil 1.
Olsten, Consolidated Oil 1.
Bob Miller, Panther Creek Oil 4.
Wells drilling, 19.

HOPKINS COUNTY
Wells Drilling

Madisonville—Bishop, Wm. Redman 1.
At Hanson, Shakerag O. & G. 1.
Wells drilling, 2.

OWSLEY COUNTY
Wells Drilling

Booneville—D. C. Manning, Petroleum Explo. 1.
W. S. Hamilton, Petroleum Explo. 1.
A. J. Barker, Petroleum Explo. 1.
Fred Evans, Combs Bros. Drg. 2.
Adison Faeley, Jonnson & Co. 1.
Smallwood, Atlantic O. Prod. 1.
Wells drilling, 6.

McLEAN COUNTY
Wells Drilling

Edmonton—Dry Fork, Phelpy & Co. 1.
Beard, Cave City O. & G. 1.
Thompson, Unknown 3.
M. Oaks, Hillsboro Oil 1.
Anderson, Knob Lick O. & G. 1.
Barrett, Seattle, Wash. Parties 1.
Pedigo, Portland Parties 1.
F. Clark, Portland Parties 1.
G. F. Cassedy, A. W. Richards 1.
Bell, Knob Lick Oil 1, 2.
Wells drilling, 11.

HENDERSON COUNTY
Wells Drilling

Henderson—Graham, Penn-Indiana Oil 1.

BREATHITT COUNTY
Wells Drilling

Jackson—S. H. Hurst, Exploration 4.

MONTGOMERY COUNTY
Wells Drilling

Mt. Sterling—J. R. Magason, Hinkston Oil 1.
Faulkner, Hinkston Oil 1.
Wells drilling, 2.

BOWAN COUNTY
Wells Drilling

Morehead—Craney Creek, Patton O. & G. 1.

GRAYSON COUNTY
Wells Drilling

Leitchfield—Cincinnati Cribbage, W. S. Lyles 1.

ELLIOTT COUNTY
Wells Drilling

Sandy Hook—Mildred Wagner, Superior Oil 1.
Geo. Karpee, T. J. Evans 2.
Ves Peters, Campbell & Wheeler 1.
Wells drilling, 3.

LAUREL COUNTY
Wells Drilling

London—Bernstadt, Common O. & G. 2.
Mrs. L. Hubbard, Piney O. & G. 1.
Wells drilling, 2.

HARDIN COUNTY
Wells Drilling

Elizabethtown—Lew J. Emery & Son 1.
Davis & Co. 1.
Wells drilling, 2.

PIKE COUNTY
Wells Drilling

Pikeville—Pond Creek Coal, A. J. Dalton 1.

KNOTT COUNTY
Wells Drilling

Hindman—Jack Shepherd, Garver & Davis 2.

FLOYD COUNTY
Wells Drilling

Hueyville—Cross Bros. 1.
Ky. R. Coal, Brown & Harmon 1.
Glogora Coal, Pennsgrade O. & G. 1.
Wells drilling, 3.

MARION COUNTY
Wells Drilling

Lebanon—Near Calvary, Kokomo Drg. 1.

HARLAN COUNTY
Rigs

Harlan—Cawood, Rex G. Carpenter 1.

TODD COUNTY
Wells Drilling

Near Elkton, Unknown 1.

ADAIR COUNTY
Wells Drilling

Columbia—Smith, Nartow-Florida Interests 1.

OWEN COUNTY
Wells Drilling

Owenton—L. P. Alexander, J. A. Boyle 1.
Unknown, Fred Hillis & Co. 1.
Wells drilling, 2.

TENNESSEE
CLAY COUNTY
Wells Drilling

Celina—L. Beberry, Biggerstaff & Co 3.
Arch Short, Powell Oil 3.
Daly, Neely's Creek Oil Co. 1.
W. T. Windle, McFarland & Co. 1.
Kyle, Union Oil Trust 2.
Marcum, Alexander Oil 3.
Williams DaFee & Co. 3.
A. A. Stafford, Hunt & McQuary 1.
Marcum 48-a, C. R. Dixon 1.
Wells drilling, 9.

MURRAY COUNTY
Wells Drilling

Hampshire—McClanahan, Dr. Doren 1

SUMNER COUNTY
Wells Drilling

Gallatin—Stewart, McGhee & Co. 1.
Unknown, Gillespie Oil 1.
Harris, Pennsylvania Parties 1.
Dutch Creek, A. M. Griffin 1, 2.
Dutch Creek No. 2, A. M. Griffin 1.
Wells drilling, 6.

WARREN COUNTY
Wells Drilling

McMinnville—Powell, Riverside O. & G. 1.
Unknown, Whitner & Co. 1.
Wells drilling, 2.

HARDMAN COUNTY
Wells Drilling

Bolivar—Brown Sans, Spring Valley Dev. 1

JACKSON COUNTY
Wells Drilling

Jackson—H. H. Murchison, Jackson-Tenn Oil 1.

GRUNDY COUNTY
Wells Drilling

Altamont—Mt. Regal, Andres-Barbee Co. 1

FAYETTE COUNTY
Wells Drilling

Sommerville—Strickland & Co. 1.

SHELBY COUNTY
Wells Drilling

Arlington—Garrett, Arlington Parties 1

VAN BUREN COUNTY
Wells Drilling

Spencer—S. W. Corner County, Johnson & Co. 1.

HAMILTON COUNTY
Rigs

Chattanooga—Near Daisy, Dryden & Co. 1

Wells Drilling

Bellvons—Parks & Co. 1.
Rigs, 1; wells drilling, 1; total, 2.

RHEA COUNTY
Rigs

Dayton—Near Dayton, Unknown 1.

BENTON COUNTY
Wells Drilling

Camden—Near Eva, Benton O. & G. 1

MISSISSIPPI
TISHOMINGO COUNTY
Wells Drilling

Iuka—Southard, Mississippi O. & Refg. 1.

CALHOUN COUNTY
Wells Drilling

Calhoun—Northeast Oil 1.

HINDS COUNTY
Wells Drilling

Hinds—Elkton, Benninger & Beach 2

JACKSON COUNTY
Wells Drilling

Utica—Jackson Oil 1.

LINCOLN COUNTY
Wells Drilling

Hartman—Anderson Drilling 1.

WASHINGTON COUNTY
Wells Drilling

Granville—Williams, Alhambra Oil 1.

LAFAYETTE COUNTY
Wells Drilling

Oxford—Kinzey O. & G. 1.

PIKE COUNTY
Rigs

Cupit—Tulsa Parties 1.

Wells Drilling

Cupit—Gulf Drilling 1.
Rigs, 1; wells drilling, 1; total, 2.

JEFFERSON COUNTY
Wells Drilling

Truly—Manhattan-Tex Oil 2.

CHICKASAW COUNTY
Wells Drilling

Hamilton—Harley Dev. 1.

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UNION COUNTY
Rigs

New Albany—Maynard Wells Oil 2.

Wells Drilling

New Albany—Maynard Wells Oil 1.
Rigs, 1; wells drilling, 1; total, 2.

TALLAHASSE COUNTY
Wells Drilling

Charleston—Charleston Oil 2.

COPIAH COUNTY
Wells Drilling

Section 15-13-3—White, B. H. White 2.
Crystal Springs—Marshall Oil 1.
Wells drilling, 2.

LOWNDES COUNTY
Wells Drilling

Columbus—Billups, Anderson Drilling 1.

ISTHAWAMBA COUNTY
Wells Drilling

Fulton—Missouri Capital 1.

CLAY COUNTY
Rigs

West Point—Gulf Dev. 1.

FRANKLIN COUNTY
Wells Drilling

Jackson—Fletchering & Co. 1.

ALABAMA
SUMTER COUNTY
Wells Drilling

Coatopa—Sam Kendall & Co. 1.

MORGAN COUNTY
Wells Drilling

Decatur—Albany, Decatur O. & G. 1.

BALDWIN COUNTY
Wells Drilling

Bay Nette—Stoll & Co. 1.

HALE COUNTY
Wells Drilling

Greensburg—Hale Oil 1.

SHELBY COUNTY
Wells Drilling

Columbian—Cooksey Oil 1.

WILCOX COUNTY
Wells Drilling

Selma—Blue Belle Oil 1.

CENTER PART STATE
Wells Drilling

Columbia—Inter Coastal Oil 2.
Salipta—Keoughan & Co. 2.
Wells drilling, 2.

MADISON COUNTY
Wells Drilling

Huntsville—P. J. Mahoney 1.

LAWRENCE COUNTY
Wells Drilling

Moulton—Tulsa Parties 1.

COLBERT COUNTY
Wells Drilling

Sheffield—P. H. Ligon, Spring Valley Oil 1.

GEORGIA
PULASKI COUNTY
Rigs

Hawkensville—Florida-Georgia Cons. Oil 1.

JEFF DAVIS COUNTY
Wells Drilling

Hazelhurst—Mid-Georgia O. & G. 1.

TELFAIR COUNTY

Scotland—Telfair Oil 1.

BURKE COUNTY
Wells Drilling

Green Cut—Three Creeks Oil 1.

NORTHERN GEORGIA
Wells Drilling

Near Dalton—Richardson & Co. 1.

FLORIDA
LEE COUNTY
Wells Drilling

Section 10-45-26—Florida Exploration 1, 2.
Section 21-44-26—T. M. Drilling Syndicate 1.
Rigs, 0; wells drilling, 3; total, 3.

HILLSBORO COUNTY
Wells Drilling

Section 8-23-20—Winnuma Oil 1.

PINELLAS COUNTY
Wells Drilling

Section 18-28-17—Hill O. & G. 1.

POLK COUNTY
Rigs

Section 9-25-25—Isaac Van Horn & Co. 1.

Wells Drilling

Section 25-27-24—Polk O. & G. 1.
Rigs, 1; wells drilling, 1; total, 2.

DUVALL COUNTY
Wells Drilling

Section 12-3-25—East Coast Oil 1.

LEON COUNTY
Wells Drilling

Section 15-28-1e—Central Florida O. & G. 1.

COLUMBIA COUNTY
Wells Drilling

Section 22-3-16—Suwanee O. & Dev. 1.

DADE COUNTY
Rigs

Section 21-53-41—Consolidated Oil 1.
Section 17-54-41—House, Marvin & Harris 1
Rigs, 2.

ALACHUS COUNTY
Rigs

Section 13-9-19—Pruitt-Gobert Florida O. Int. 1.

GLADES COUNTY
Rigs

Section 2-4-30—Brewton O. & Land 1.

SUMPTER COUNTY
Rigs

Section 21-2-22—Stevens, Driver Oil 1.

REFINERY FOR MELBOURNE

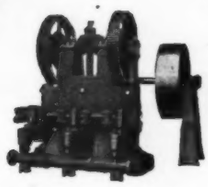
The Commonwealth Government of Australia holds 250,001 shares and the Anglo-Persian Oil Co. owns 249,999 shares in the project known as the Commonwealth Oil Refineries, Ltd., the purpose of which is to import crude oil from the Persian fields and refine it in Australia. This company now states that it will be in a position to start refining operations early in 1924, and that it proposes to establish its own depots for the distribution and marketing of its product throughout the commonwealth. At present, nine steel tanks, with a total capacity of 7,000 tons are being erected as storage for benzine and kerosene. The various units for distillation and refining—comprising primary distillation plant, redistillation plant, benzine and kerosene refineries, steam boilers and process pumps—are being installed, and the 8-inch crude oil pipe from the wharf to the transit site and from the transit site to the refinery tank farm is practically completed.

ANGOLA REORGANIZED TO ENLARGE PROGRAM

A recent development of interest in the British petroleum world has been the reorganization of the Angola Oilfields Ltd., which is expected to result in their shortly becoming an important factor in the oil production of the Eastern Hemisphere. This company was organized in 1921 to take over from the Portuguese concessionaire a Portuguese Government oil concession in Angola, Portuguese West Africa. The holdings comprise 107,000 square miles, extending from Port Lobito to Port Alexander.

Up to the present the company is said to have been handicapped by lack of capital and has not been able to develop its territory beyond a small amount of prospecting. It is understood that this difficulty has now been solved, the Phoenix Oil &Transport Co. Ltd., the Lobitos Oilfields Ltd., and the Rumanian Consolidated Oilfields Ltd., having arranged to furnish the necessary capital for a thorough survey and development of the territory covered by the concession in return for control of the Angola Oilfields, Ltd.

Deming



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PUMPS

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Statement for October

Runs

	Month	Daily Av.
*Prairie Pipe Line Co....	2,387,000	77,000
Gulf Pipe Line Co.....	1,043,379	33,657
The Texas Co.	474,227	15,298
Magnolia Pet. Co.	909,711	29,346
Empire Pipe Line Co....	844,521	27,243
Cosden Pipe Line Co....	546,141	17,617
Sinclair Pipe Line Co....	517,281	16,687
*Other lines	7,006,000	226,000
Total October 13,728,260		442,848
Total September 13,995,248		466,507
Difference	266,988	23,659

Shipments

†Prairie Pipe Line Co...	2,500,871	80,673
Gulf Pipe Line Co.....	1,474,651	47,570
The Texas Co.....	404,424	13,046
Magnolia Pet. Co.	408,645	13,182
Empire Pipe Line Co....	800,966	25,838
Cosden Pipe Line Co.....	650,357	20,979
†Sinclair Pipe Line Co...	1,327,428	42,820
*Other lines	5,735,000	185,000
Total October 13,302,342		429,108
Total September 13,181,119		439,371
Difference		10,263

Stocks

*Prairie Oil & Gas Co. 23,000,000	
*Prairie Pipe Line Co.	1,350,000
Gulf Pipe Line Co. & Gypsy Oil Co.	8,896,778
The Texas Co.	7,909,376
Magnolia Pet. Co.	7,994,555
Cosden Pipe Line Co.	3,345,257
Empire Pipe Line Co.	2,862,027
*Sinclair Crude Oil Purch. Co....30,425,000	
Carter Oil Co. 17,688,228	
*Other lines	4,600,000
Total October 108,071,221	
Total September 105,557,684	
Difference	2,413,537

*Estimated. †Includes shipments of Texas crude oil.

Note—Stocks do not include approximately 7,200,000 bbls. of crude oil held in storage on private tank farms and leases.

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1920	1921	1922	1923
January	56,004	64,460	67,702	75,790
February	68,699	70,054	75,096	71,093
March	67,745	68,555	78,531	76,592
April	64,589	65,036	75,462	75,614
May	63,937	65,466	77,592	77,365
June	68,750	62,438	76,193	77,592
July	66,489	59,486	76,435	71,879
August	63,861	64,888	79,387	76,910
September ...	68,102	60,110	78,512	72,358
October	65,066	57,688	77,209	76,256
November ...	62,758	58,470	75,313	.....
December ...	60,975	61,000	73,351	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1920	1921	1922	1923
January	98,535	115,550	119,792	171,067
February	107,146	96,736	111,362	164,219
March	110,777	84,168	127,753	185,487
April	114,090	101,015	127,068	179,751
May	110,219	100,253	127,840	177,102
June	102,598	105,037	137,638	173,598
July	112,340	97,096	137,872	168,320
August	122,296	101,652	153,275	143,766
September	127,143	117,440	158,761	137,266
October	122,891	105,728	165,345	134,597
November ...	117,730	121,803	165,677	131,426
December ...	117,201	104,023	172,861	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines, at the close of each month for the past three years:

	1921	1922	1923
January ...	7,916,353	16,297,858	14,040,567
February ...	8,721,878	17,009,293	14,028,437
March	9,818,766	16,877,937	13,873,146
April	10,369,941	16,777,842	13,737,575
May	11,224,694	16,948,962	13,815,622
June	12,328,126	16,810,169	14,541,253
July	13,798,698	16,669,286	14,645,584
August	15,155,633	16,235,229	14,770,539
September ..	15,525,750	16,228,545	14,803,444
October ...	15,761,079	15,757,746	14,504,111
November ..	14,971,071	15,171,972	14,157,726
December ..	15,854,741	14,323,765	.....

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

1922—	Rcpts.	Shipmts.	Stocks
November	3,052.75	2,230.18	30,135.70
December	3,076.36	1,292.84	31,919.22
1923—			
January	2,793.55	2,461.36	32,256.41
February	2,692.93	932.33	34,017.01
March	2,978.88	12,417.00	24,578.89
April	3,529.12	3,054.09	25,053.92
May	3,538.73	4,856.42	23,736.23
June	2,927.71	4,743.78	21,920.16
July	2,996.64	1,471.57	23,445.23
August	3,199.07	3,769.34	22,874.96
September	2,829.79	5,822.38	19,882.37
October	2,694.23	5,251.81	17,324.79
November	2,980.66	4,150.98	16,154.47

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, Dec. 1 .....2,355,986.29	
Runs from wells	518,482.44
Other receipts	89,978.79
Regular deliveries	194,357.29
Other deliveries	522,484.94

The amount of Illinois oil run by the Tidewater Pipe Line Co. in November was 28,376.99 bbls., and deliveries were 91,334.80 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries from the Illinois field as follows:

1922—	Runs	Deliveries
November 566,508.03	434,681.97	
December 552,069.33	391,868.37	
1923—		
January 599,239.86	470,958.84	
February 496,421.79	382,566.83	
March 625,006.81	472,920.76	
April 521,910.87	423,548.43	
May 624,107.98	523,515.00	
June 582,511.82	509,137.77	
July 594,653.42	489,269.17	
August 594,747.94	367,152.82	
September 542,561.59	305,925.40	
October 576,867.09	347,812.82	
November 546,859.43	285,692.09	

The Tidewater Pipe Co., Ltd., also delivered in November 213,574.90 bbls. of Oklahoma oil. The total deliveries of all grades by the Tidewater were 447,647.14 bbls.

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for October and November:

	Oct., '23	Nov., '23
Nat. Transit	211,486.93	178,880.95
S. W. Pa. P. L.....	93,352.02	80,301.07
Eureka P. L.	430,327.54	345,268.16
Buckeye P. L. (Macksburg)	280,073.58	266,960.08
Buckeye P. L. (Cleveland)	19,218.85	15,777.99
Buckeye P. L. (Lima, etc.)	144,889.47	130,829.28
Indiana P. L.	14,811.54	13,120.99
Cumberland P. L...	399,736.19	368,174.21
N. Y. Transit	17,402.53	14,967.98
Tidewater P. L....	163,016.59	139,902.74
Pure Oil P. L.	190,792.36	179,104.65
Emery P. L.	35,209.98	31,556.95
Indian Ref.	315,405.99	292,637.55
Paragon Dev.	31,501.81	30,277.90
Pittsburgh P. L...	10,612.83	7,892.18
Swiss P. L.	1,015.89	.....
Riggs Ref.	5,083.17	.....
Union P. L.	.....	24,630.71
Fords Brk. P. L....	.....	645.36
Allegany P. L.....	.....	1,913.90
Total 2,363,937.27		2,122,845.75
Daily av.	76,256.04	70,761.52

Note—Indian Refining Co. also reported other receipts of 79,218.33 bbls. Paragon Refining Co. had other receipts of 110,958.18 bbls. Paragon Development Co. had other receipts of 4,465.46 bbls. Pittsburgh Pipe Line had other receipts of 2,604 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for October and November:

	Oct., '23	Nov., '23
Nat. Transit	497,929.96	457,702.13
S. W. Pa. P. L.....	283,546.24	284,651.72
Eureka P. L.	126,716.26	127,735.31
Buckeye P. L. (Macksburg)	82,031.33	95,645.60
Buckeye P. L. (Cleveland)	1,190.92	1,650.70
Buckeye P. L. (Lima, etc.)	641,793.54	644,947.26
Indiana P. L.	871,560.84	641,534.13
Cumberland P. L...	210,110.54	160,573.63
Southern P. L.	.....	686.00
Crescent P. L.	96,990.57	93,241.00
N. Y. Transit	487,333.83	298,394.00
Northern P. L.	32,004.07	37,498.00
Tidewater P. L.	166,403.18	142,737.00
Pure Oil P. L.	152,289.34	170,347.00
Emery P. L.	34,574.09	31,370.00
Paragon Ref.	145,289.60	116,589.00
Indian Ref.	291,983.99	413,340.00
Paragon Dev.	37,398.15	36,301.00
Pittsburgh P. L. ..	13,262.01	10,043.00
Swiss P. L.	94.29	.....
Riggs Ref.	.....	.....
Union P. L.	.....	.....
Fords Brk. P. L....	.....	15,694.00
Allegany P. L.	.....	646.00
Total 4,172,493.66		3,942,774.00
Daily av.	134,596.57	131,425.80

Gross Stocks

The gross stocks held by various pipe lines in the oil producing section of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of October and November, were as follows:

	Oct., '23	Nov., '23
Nat. Transit	1,197,386.76	1,190,576.00
S. W. Pa. P. L....	879,120.26	743,383.00
Eureka P. L.	2,004,502.23	1,973,158.00
Buckeye P. L. (Macksburg) ...	500,740.53	476,892.00
Buckeye P. L. (Cleveland)	30,341.60	13,643.00
Buckeye P. L. (Lima, etc.)	4,305,655.97	4,312,302.00
Indiana P. L.	664,435.63	721,540.00
Cumberland P. L...	667,160.74	666,231.00
Southern P. L. ...	1,027,470.36	1,009,170.00
Crescent P. L.	69,131.69	83,446.00
N. Y. Transit	1,457,294.82	1,171,946.00
Northern P. L.	664,494.04	772,202.00
Tidewater P. L.	.....	.....
Pure Oil P. L.	323,826.50	331,263.00
Emery P. L.	6,273.97	6,700.00
Paragon Ref.	166,464.07	167,737.00
Indian Ref.	516,278.86	478,753.00
Paragon Dev.	10,052.07	8,468.00
Pittsburgh P. L. ..	9,272.45	8,979.00
Swiss P. L.	3,861.55	.....
Riggs Ref.	1,146.43	.....
Union P. L.	.....	22,960.00
Fords Brk P. L....	.....	394.00
Allegany P. L.....	.....	670.00
Total 14,504,110.53		14,157,736.00
Decrease	299,333.34	346,394.00

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of October and November, showing the gross stocks of the above fields:

	Oct., '23	Nov., '23
Pennsylvania	3,791,868.58	3,818,102.00
Lima	937,787.17	916,233.00
Kentucky	1,964,677.52	1,940,643.00
Mid-Continent ...	7,244,245.62	6,937,331.00
Illinois	565,533.34	544,977.00
Total 14,504,110.53		14,157,736.00

AVERAGE WEEKLY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF PORTS

Av. bbls. per wk.—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans Baton Rouge	Pt. Arthur Sabine Pass	Tampa	Total	Total All Ports
July	110,750	18,750	517,000	185,250	121,750	952,500	.....	139,750	.....	.....	139,750	1,092,250
August	116,067	51,709	688,485	222,873	151,970	1,231,104	.....	24,612	219,030	.....	243,642	1,474,746
September	205,600	47,400	516,200	125,200	126,600	1,000,000	.....	140,600	.....	.....	140,600	1,140,600
October	195,000	56,000	626,000	220,000	107,000	1,178,000	.....	208,000	.....	.....	208,000	1,386,000

AVERAGE WEEKLY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Av. bbls. per wk.—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	Baton Rouge New Orleans	Sabine Pass Pt. Arthur	Tampa	Total	All Ports Total
May	114,665	128,750	256,500	109,250	153,750	662,915	335,250	227,500	298,500	63,500	924,750	1,587,665
June	62,800	84,200	358,200	153,400	161,800	757,600	301,000	228,400	212,400	45,800	787,600	1,545,200
July	71,750	116,250	451,500	112,000	218,750	970,250	367,750	280,000	208,250	23,000	879,000	1,849,250
August	116,065	89,113	374,613	102,970	197,127	879,888	338,485	266,224	234,388	45,633	1,295,730	2,175,618
September	53,600	113,000	353,200	132,000	149,600	801,400	355,200	279,400	176,000	44,800	714,200	1,515,600
October	91,250	48,000	198,500	134,000	204,000	800,750	247,000	352,500	95,000	125,000	707,000	1,507,750

PRODUCTION BY MONTHS AND DAILY AVERAGE PRODUCTION IN THE U. S. FOR 12 MONTHS

1922—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Wyoming Montana	Other Fields	Totals
November:	Month	14,035,537	12,613,560	8,676,000	2,646,091	1,023,450	2,529,150	2,908,800	3,205,290	47,637,878
	Daily average	467,818	420,452	289,200	85,261	34,115	84,305	96,960	106,483	1,587,959
December:	Month	15,426,810	13,185,416	8,707,931	2,649,900	1,596,500	2,463,291	3,108,866	3,149,445	50,288,159
	Daily average	497,639	425,336	280,901	82,330	51,500	79,461	100,286	101,595	1,622,748
1923—										
January:	Month	16,457,445	13,328,574	8,881,009	2,826,611	2,317,002	2,428,018	3,124,707	3,423,516	52,786,882
	Daily average	530,885	425,817	286,484	91,181	74,742	78,323	100,797	110,436	1,702,641
February:	Month	16,426,759	12,045,020	7,663,992	2,748,660	2,258,984	1,084,008	2,922,192	2,907,340	48,056,955
	Daily average	586,670	444,465	273,714	91,622	80,678	67,286	104,364	104,405	1,716,205
March:	Month	19,608,192	13,955,823	8,462,783	2,847,040	2,970,575	2,312,600	3,274,778	3,464,529	56,896,320
	Daily average	632,525	450,188	272,993	91,840	95,825	74,600	105,638	111,759	1,835,368
April:	Month	20,695,959	14,399,610	8,403,240	2,768,052	2,766,000	2,160,300	3,584,048	3,281,340	57,058,549
	Daily average	689,865	479,987	280,108	89,292	92,200	72,010	115,947	109,378	1,902,619
May:	Month	21,535,365	15,658,782	8,932,000	2,805,750	3,389,000	2,175,000	3,566,600	3,546,400	61,608,897
	Daily average	694,689	505,122	288,129	93,525	109,323	70,161	115,051	114,400	1,987,100
June:	Month	22,667,106	15,572,730	8,817,000	2,797,830	3,078,990	1,981,800	3,385,600	3,401,400	61,702,456
	Daily average	755,570	519,091	293,909	93,261	102,633	66,066	122,853	113,380	2,056,748
July:	Month	25,262,082	15,260,184	10,662,000	2,448,566	2,859,000	2,012,000	4,143,400	2,788,690	65,434,922
	Daily average	814,906	492,264	343,935	78,986	92,226	64,903	133,657	89,955	2,110,771
August:	Month	26,440,005	14,049,076	11,454,000	2,316,320	3,113,000	2,078,000	4,180,000	3,473,300	67,103,701
	Daily average	852,903	453,196	369,484	74,720	100,419	67,032	134,861	112,043	2,164,635
September:	Month	25,762,500	12,812,220	13,287,000	2,234,130	3,350,000	1,855,000	4,449,500	3,262,800	66,813,150
	Daily average	858,750	427,074	409,567	74,471	111,666	61,834	148,317	108,760	2,226,045
October:	Month	24,576,000	12,961,782	14,903,000	2,336,346	3,046,100	1,861,000	3,460,000	3,468,290	66,612,518
	Daily average	792,787	418,122	480,742	75,366	98,263	60,032	111,613	111,877	2,148,798
	Twelve months	248,893,760	165,842,782	117,849,954	31,425,296	31,768,501	24,940,167	42,108,491	39,372,160	702,290,311
	Total daily average	681,901	454,391	322,877	86,097	87,037	68,329	115,366	107,869	1,923,867

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that losses in the refinery are often worse than buying crude above the market or selling gasoline below it. That is why the big men in the big companies watch refinery costs. Many of these men know from experience that Calorizing the tubes in pressure stills reduces operating and maintenance costs, permits cracking heavier ends and increases the output.

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Yours very truly,

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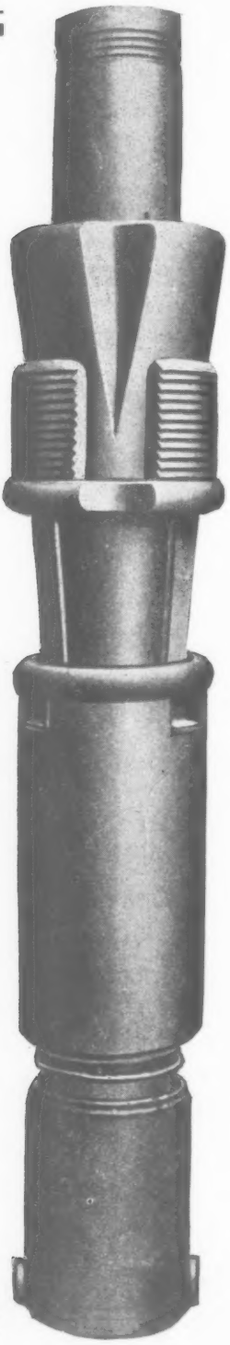

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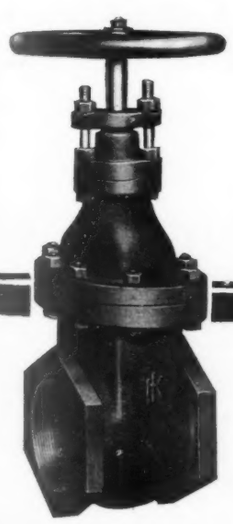

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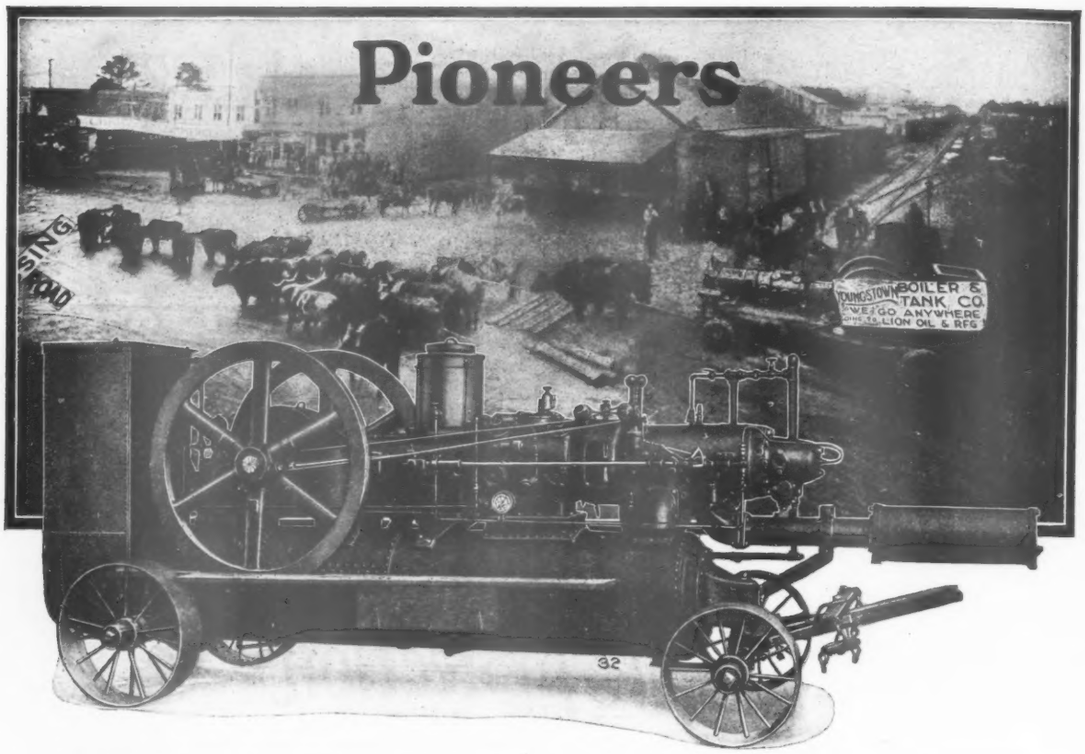

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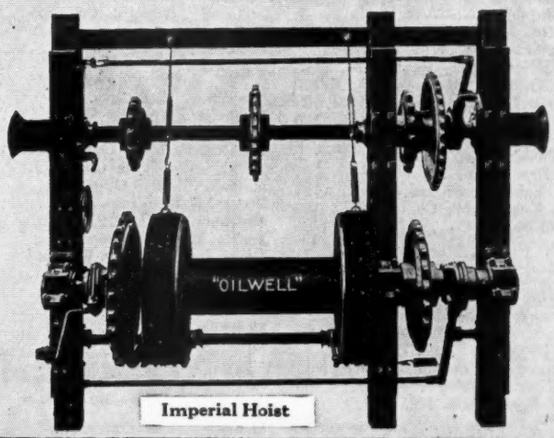

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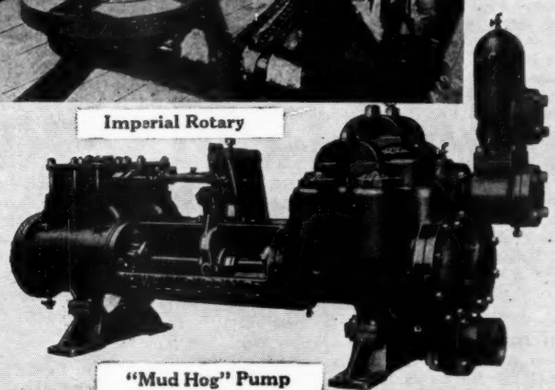
Double Gate Elevator

Imperial Rotary



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